

Report on Good Navigation Status

(update December 2024)



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Abbreviations

HNWL	Highest Navigable Water Level
LNWL	Low Navigable Water Level
GNS	Good Navigation Status
FRMMP	Fairway Rehabilitation and Maintenance Master Plan for the Danube and its navigable tributaries

1. Executive summary

These Reports on Good Navigation Status (GNS) illustrate the status of selected GNS “hard” and “soft” components in the Danube riparian countries Austria, Slovakia, Hungary, Croatia, Romania and Bulgaria, monitoring the implementation status of the minimum requirements navigable channel depth of at least 2,5 m and a minimum height under non-openable bridges of at least 5,25 m at specified reference water levels of the TEN-T Regulation (EU) 2024/1679 as well as the Fairway Rehabilitation and Maintenance Master Plan for the Danube and its navigable tributaries as it was endorsed by a large majority of the Danube Transport Ministers in December 2014. Yearly updates are foreseen to provide the necessary information. This report provides an overview of the status of the selected GNS components in 2023.

Status of GNS “hard” components

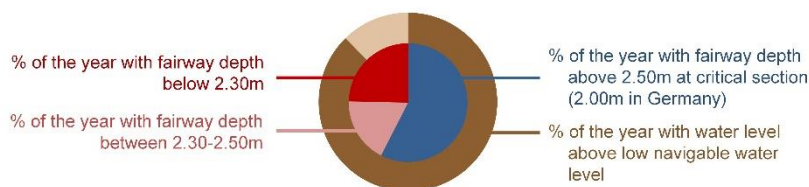
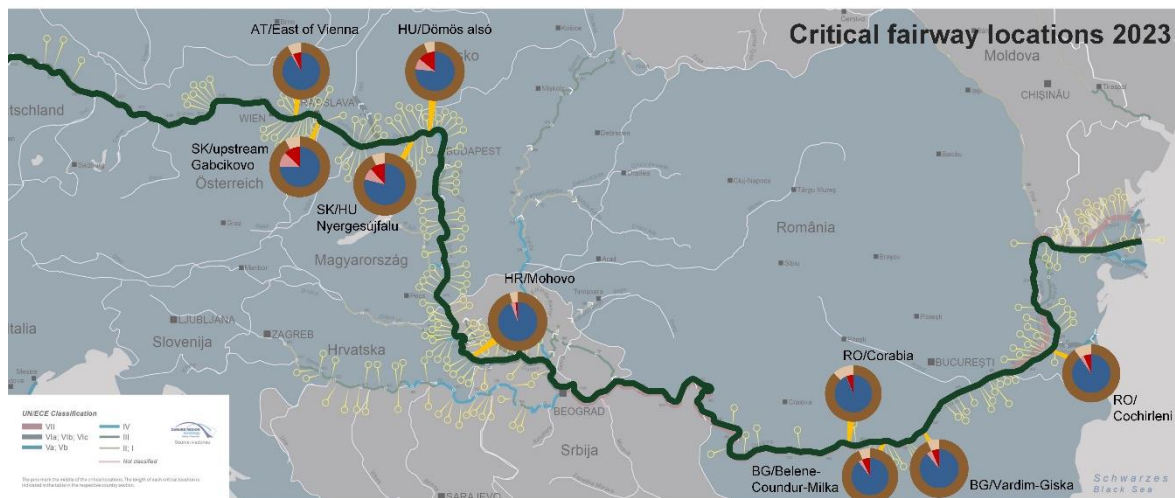
In 2023, hydrological conditions were actually quite favourable in the sense that inland navigation was spared a long period of low water during the summer and autumn months. Water levels dropped drastically in October but really only for the period of this one month.

Most waterway authorities were well prepared and had carried out maintenance dredging activities of the most critical shallow sections at the right time and were then – on the Lower Danube – able to bridge the days with very low discharge with traffic regulations such as width and depth restrictions.

This is reflected in the fairway availability of less than 40 days below the 2.5m fairway depth target on the Romanian and Bulgarian Danube stretch.

In contrast to that, the Slovak sector upstream Gabčíkovo and several parts of the Hungarian Danube were the most limiting sectors for navigation in 2023. This is largely due to the fact that dredging activities in Slovakia did not have the desired effect and in Hungary no maintenance dredging has been performed for many years, leaving the Hungarian sector of the Danube largely dependend on hydrological conditions.

Fairway availability at critical locations along the Danube 2023



The chart provides a status overview of the most important critical locations on the Danube in 2023. For each critical location, the figure illustrates the situation regarding fairway availability (inner circle) in relation to reference water levels (outer circle). The maintenance target is to provide fairway depths equal to or exceeding 2.5 m on at least as many days per year as the statistical Low Navigable Water Level (LNWL). This situation corresponds to the inner blue circle reaching the level of the outer dark brown circle. It is also important to include depths of just under 2.5 m when interpreting the status of critical locations. These allow for a slightly reduced level of navigability although not reaching a depth of 2.5 m.

On some sections of the fairway depths of 2.4 m or 2.3 m (light-red colour in the inner circle) were available on some of the days.

Status of GNS “soft” components

Since 2015 considerable investments in rehabilitation and maintenance equipment have been initiated by almost all Danube riparian countries with the support of EU co-financing in order to improve the technical capacities of the respective waterway administrations. Especially from 2018 to 2022 all waterway administrations along the Danube procured gauging stations, surveying and/or marking vessels and/or dredging equipment. At the same time, some countries continue to fail in securing sufficient national yearly budgets for the waterway authorities for the necessary operative maintenance and rehabilitation measures to provide reliable fairway conditions.

In 2023, the worst navigational bottlenecks were situated on the Hungarian Danube. Hungary has not carried out maintenance dredging for many years, there is no framework contract for dredging and the waterway authorities have no dredging equipment at their disposal.

In Romania and Bulgaria the use of framework contracts for maintenance dredging as well as the use of in-house equipment has become the standard in recent years. Nevertheless, it is still also necessary to closely monitor the waterway authorities' operational budgets for such measures.

2. Introduction

When the “Fairway Rehabilitation and Maintenance Master Plan for the Danube and its navigable tributaries” (FRMMP) was adopted in 2014 it was agreed among the Danube riparian states that its implementation status should be monitored by so-called “National Action Plans”. Between 2015 and 2021 such National Action Plans were elaborated at least once a year.

The main parameter monitored was the condition of the international Danube waterway - more precisely, the achievement of 2.5m fairway depth or 2.00m fairway depth on the German section of the Danube at specific reference water levels. In addition, the maintenance activities carried out by the waterway authorities of the Danube region as well as operational budgets and investment measures were described for each country. The objectives of the Fairway Rehabilitation and Maintenance Master Plan correspond to some of the specific requirements of the “Good Navigation Status” concept, as defined for the purpose of implementing the TEN-T Regulation.

As part of the FAIRway Danube II project, the National Action Plans for all countries involved in the project (Austria, Slovakia, Hungary, Croatia, Romania and Bulgaria) were amended to include the monitoring of the minimum height under non-operable bridges and, in future, navigation closures in the individual countries will also be recorded. This means that the two minimum requirements of the TEN-T Regulation regarding the physical fairway parameters of the TEN-T network are monitored as well as the implementation status of the FRMMP.

Germany, Serbia, Bosnia and Hercegovina as well as Moldova and Ukraine will contribute data on a voluntary basis in the framework of their engagement in Priority Area 1a of the EUSDR. These countries will continue to provide “National Action Plans” as they have done in previous years.

2.1. Definition of Good Navigation Status

The TEN-T Regulation (EU) 2024/1679 requires that a „Good Navigation Status“ (GNS) has to be achieved (and thereafter preserved) by 31 December 2030 according to article 23 of the Regulation, while respecting the applicable environmental law. A definition of the GNS was elaborated already in 2018 as part of the „Study on support measures for the implementation of the TEN-T Core Network related to sea ports, inland ports and inland waterway transport, LOT 3 – Good Navigation Status”, which was commissioned by the European Commission, DG MOVE, resulting in “Guidelines towards achieving a Good Navigation Status”.

The following definition was developed:

“Good Navigation Status (GNS) means the state of the inland navigation transport network, which enables efficient, reliable and safe navigation for users by ensuring minimum waterway parameter values and levels of service”.

Apart from the physical waterway infrastructure, GNS has to be considered in the wider socio-economic scope of waterway management. Thus, to achieve and maintain GNS, both “hard” and “soft” components must be taken into account as illustrated by the following scheme:

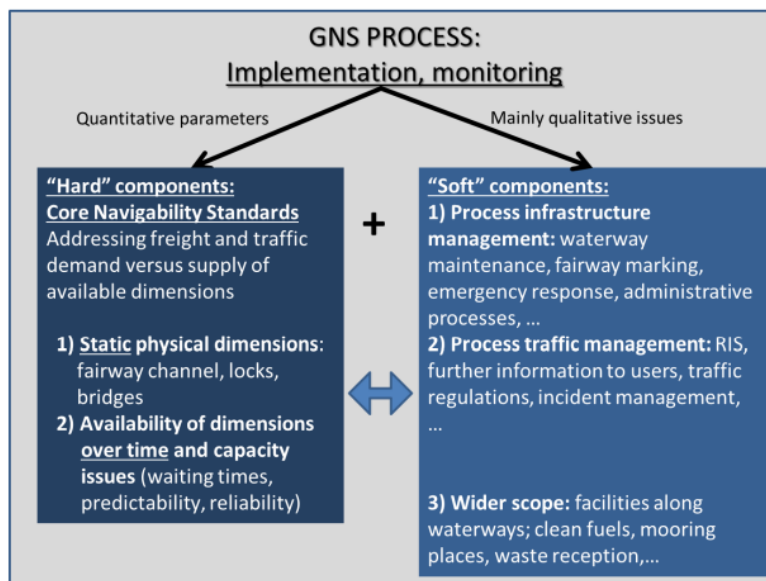


Figure 1: Scheme of the GNS Process (source: Guidelines towards achieving a Good Navigation Status, 2018, Directorate-General for Mobility and Transport Directorate D Waterborne)

The GNS “hard” components relate to the physical waterway infrastructure as a direct output of waterway management. Indicators for the “hard” components are measurable parameters which describe the physical dimensions of the navigation channel in rivers, canals and lakes (e.g. depth) and of locks, ship lifts and bridges, as well as their availability over time (e.g. closures).

The GNS “soft” components relate to management aspects of both infrastructure (e.g. fairway maintenance) and traffic (e.g. RIS), as well as the availability of wider facilities along waterways and in ports (e.g. mooring places, waste disposal facilities) which contribute to the Level of Service on and along the waterways. The “Fairway Rehabilitation and Maintenance Master Plan” contains an overview of existing critical waterway sections or locations to be monitored and defines – for each riparian state – the key issues and remaining needs for action in waterway management, i.e. essentially the needs in relation to the “soft” components of the GNS that concern waterway management. The implementation of the FRMMP is consequently a step towards the realisation of Good Navigation Status.

2.2. Recommended minimum Levels of Service

The revised TEN-T Regulation (EU) 2024/1679 provides that Member States ensure a navigable channel depth of at least 2.50 m and a minimum height under non-openable bridges of at least 5.25 m at specified reference water levels (in particular HNWL and LNWL), which are exceeded at a defined number of days per year on a statistical average. This is necessary in order to realistically reflect the natural and statistical fluctuations in water discharge over the course of the year. These reference water levels are currently being defined in Implementing Acts, elaborated for each TEN-T Corridor.

The “Fairway Rehabilitation and Maintenance Master Plan” (FRMMP) adopts the target developed in the NEWADA duo project¹ by the waterway management experts of the Danube region, who defined the recommended minimum Level of Service related to fairway depth (not draught) for the Danube and its navigable tributaries as 2.50m² at Low Navigable Water Level³ (LNWL or ENR / Étiage navigable et de regularisation), i.e. on 94% (343 days) of the year, calculated on the basis of the discharge observed over a period of 30 years with the exception of ice periods. This means that 2.50m fairway depth must be guaranteed at least on the days of the year on which the actual water level is equal to or above the statistical

¹ NEWADA duo, implemented between 2012 and 2014, was co-funded by the South-East Europe Transnational Cooperation Programme and dealt with integrated waterway management. NEWADA duo assessed current and future maintenance activities as well as the needs to fulfil a common minimum level of service.

² Or the respective target value relevant for the special section (e.g. 2.0 m in Straubing-Vilshofen on the German Danube).

³ LNWL = the water level reached or exceeded at a Danube water gauge on an average of 94% of days in a year (i.e. on 343 days) over a reference period of several decades.

Low Navigable Water Level (LNWL). Information on the status of critical locations is only valid in relation to the hydrological conditions in the same period.

In some river sections however, e.g. in Germany, Slovakia and Hungary, this target is not valid, as it is not achievable by stream regulation and maintenance measures due to physical preconditions. This aspect remains valid throughout this document.

The recommended fairway widths for the minimum depth (both based on NEWADA duo) were defined in order to represent a “deep fairway channel” and comprise a range of values for different bend radii for a reference (i.e. the most common) vessel or convoy going downstream in one-way traffic. Higher fairway widths are needed in sharper bends of the waterway, as the drift angle of the respective vessel must be accounted for. The respective widths for which the 2.50m fairway depth target applies are listed in the respective national chapters.

The following target values for vertical dimensions of the waterway are assumed in connection with this report:

- **Navigation channel:** the target value of 2.50m fairway depth at LNWL according to the FRMMP and the TEN-T Regulation is monitored.
- **Bridge clearance:** the target value of 5.25m minimum height under bridges in relation to the highest navigable water level according to the TEN-T Regulation is monitored.

2.3. Purpose and scope of the Reports on Good Navigation Status

The present Report on Good Navigation Status shall monitor for the Danube riparian states collaborating in the FAIRway Danube II project the status of selected GNS “hard” and GNS “soft” components. Therefore, each country chapter is divided into two sections of the same name – GNS “hard” and GNS “soft” components.

Selected GNS “hard” components to be monitored:

- **TEN-T minimum requirement availability of the navigation channel:**
The monitoring focusses on the most critical navigational bottlenecks, as continuously identified by the waterway administrations and users, as the weakest critical location determines the capacity of the entire country stretch.
The target is to provide a fairway depth exceeding 2.50 m at least on as many days per year as show actual water levels equal to or above the statistical Low Navigable Water Level (LNWL). Therefore, information on the status of critical locations is only valid in relation to the hydrological conditions in the same period. This would correspond to an equal height of the blue columns (availability of 2.50m fairway depth) and the white columns framed in blue (water level equal to or above Low Navigable Water Level) in the fairway availability statistics in the national chapters. It is also important to take the depth classes close to 2.50m into account when interpreting the status of critical locations, as these provide a certain range of navigability although not meeting the 2.50m threshold. Therefore, the number of days with 2.40 or 2.30m fairway depth is displayed additionally.
- **TEN-T minimum requirement availability of minimum height under bridges** (as of 2024 for the countries where data is already available)

Selected GNS “soft” components to be monitored:

- **Status of and outlook on needed actions according to the updated FRMMP**
- **Review of monitoring, rehabilitation and maintenance activities** (as of 2024):
The reports will also contain information about the ecological compatibility of maintenance measures, where applicable.
- **Status of operational budgets and investments** (as of 2024):
Any tables on costs and budgets allow only limited comparison between the riparian states, as the national accounting practices vary (e.g. some countries summarize more activities under “maintenance and rehabilitation” than others). The main purpose is to illustrate the cost and budget development over the years per country and to indicate financing needs.

The Reports on Good Navigation Status are designed as living documents, in a sense that their contents are constantly under review and will be elaborated in order to provide the highest level of transparency and the greatest benefit for the waterway administrations. The selected components to be monitored might thus be amended over time.

The reports shall be updated regularly in order to serve as a proper monitoring and documentation tool as regards the planning of future budgets and activities. Contents for these updates will be provided in the framework of the CEF-financed FAIRway Danube II project for the countries that are project partners (Austria, Slovakia, Hungary, Croatia, Romania, Bulgaria). The remaining Danube riparian countries are integrated via PA1a – Inland Waterways of the European Strategy for the Danube Region and will be asked to contribute data as of 2025 in the form of the formerly used “National Action Plans”. An annual update is planned at the beginning of the year, in which the status of the previous year is described.

The aim is to standardise and simplify the data gathering process as much as possible; the use of electronic support tools, namely the transnational waterway monitoring system WAMOS, is under preparation.

2.4. Environmental compatibility of rehabilitation and maintenance measures

The rehabilitation and maintenance measures and activities monitored within the context of this report (surveying, fairway relocation, dredging and better information) have the character of reversible interventions. Nevertheless, also in the context of waterway maintenance and rehabilitation, official notifications/consultation, mutual agreement or permits from the competent national authorities are required in relation to water law, nature conservation law and (in some countries) national park law.

The authorities responsible for issuing these environmental permits comply with the goals of the legal instruments of the European Union, such as the Water Framework Directive 2000/60/EC (WFD) or the Environmental Impact Assessment Directive (85/337/EEC) and the Habitats Directive (92/43/EEC) in connection with the Birds Directive (2009/147/EC) which form the NATURA 2000 network. Further relevant Directives may be the Strategic Environmental Impact Assessment Directive (2001/42/EC), the Flood Risk Management Directive (2007/60/EC) and the Public Participation Directive (2003/35/EC).

Information on (expected) environmental impacts and mitigation measures will be provided, where applicable.

2.5. Adoption of Reports on Good Navigation Status

The reports are prepared within the FAIRway Danube II project. The FAIRway Danube II Steering Committee approved the reports for the countries participating in the project (Austria, Slovakia, Hungary, Croatia, Romania and Bulgaria) from a technical point of view. The Steering Group of PA1a is the body responsible for the adoption of the National Action Plans of the remaining Danube riparian countries.

3. Austria

3.1. AT | Monitoring of GNS “hard” components

3.1.1. AT | Status of TEN-T minimum requirement: availability of the navigation channel

Number of days with fairway depths $\geq 2.50\text{m}$ at main critical locations 2015-2023

for a fairway width according to Level of Service 1 (40 - 80m, CEMT class VIb-VIc)

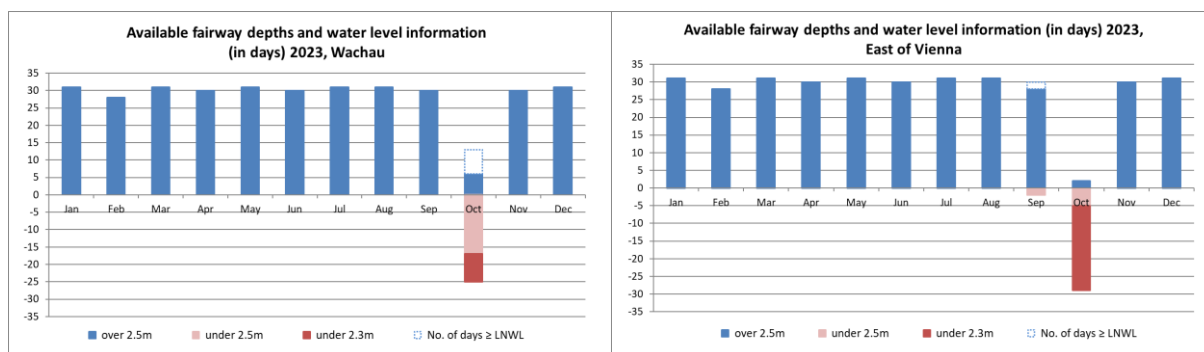
Critical location	2015	2016	2017	2018	2019	2020	2021	2022	2023
Wachau	323	359	342	294	352	355	333	363	340
East of Vienna	224	326	317	258	326	337	315	343	333

Number of days with water level \geq LNWL at main critical locations 2015-2023

Critical location	Reference gauges	2015	2016	2017	2018	2019	2020	2021	2022	2023
Wachau	Kienstock + Dürnstein	330	355	341	309	361	362	343	361	347
East of Vienna	Wildungsmauer + Thebenerstraßl	310	343	328	274	335	334	317	328	336

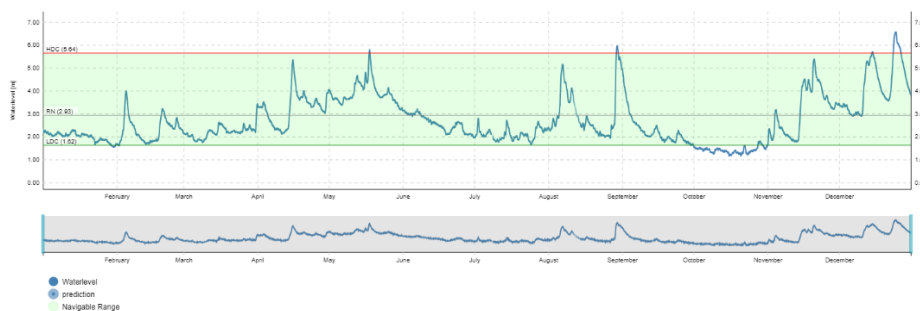
*Note from hydrological department: Data is operational data and can be subject to change.

The water discharge in the two free-flowing stretches of the Danube was perfectly average in 2023. The year started with low water levels (yet still above the defined Low Navigable Water Level (LNWL)) and remained above LNWL all through summer. Only in October water levels dropped significantly. LNWL was not reached for 18 days in the critical sector Wachau and for 29 days in the sector East of Vienna.



The critical section East of Vienna is the most problematic section on the Austrian Danube stretch with several fords determining the availability of the navigation channel. In the free-flowing section Wachau, one ford in particular (“Weißkirchen”) determines the availability of the navigation channel.

WILDUNGSMAUER: Waterlevel (1.1.2023 - 31.12.2023)



3.1.2. AT | Status of TEN-T minimum requirement: availability of minimum height under bridges

viadonau publishes the current bridge clearance of the 8 lowest bridges on the Austrian stretch every 15 minutes. Even at the highest navigable water level (HNWL), at which navigation is suspended, the clearance is never below 5.25 meters. Accordingly, Austria achieves 100% of this target of the TEN-T regulation at all times that navigation is not suspended.

3.2. AT | Monitoring of GNS “soft” components

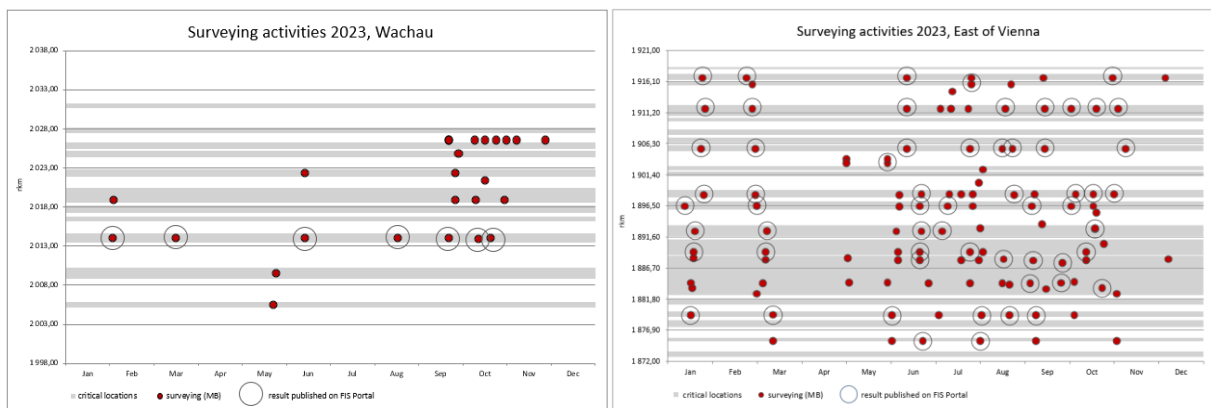
3.2.1. AT | Status of and outlook on needed actions according to the updated FRMMP

AT 01: Support the improvement of the system for remote monitoring of the buoy position, and integration of the position data into Inland ECDIS as user information		
Status and next steps (incl. timing):	The system for remote monitoring of the buoy position is implemented but has repeated failures with individual buoys, which must be repaired by the manufacturer. As soon as this problem has been resolved, the information will be distributed via the ECDIS.	
AT 02: Support the further development of the national waterway asset management system (WAMS)		
Status and next steps (incl. timing):	Currently, no major changes are envisaged.	
AT 03: Support acquisition of modern pusher for efficient marking operations		
Status and next steps (incl. timing):	The new pusher “Bad Deutsch-Altenburg” was delivered in summer 2023. A second (identical in construction) pusher will be commissioned in 2026 which will be operated with 100% HVO. In 2025 a multifunctional pontoon will be built.	
AT 04: Set-up and test new, flexible and adaptive infrastructure elements under real life conditions in order to ensure and improve navigability at extreme low water levels		
Planned activities:	FAIRway Danube II project: Pilot operation to test flexible infrastructure elements in the area east of Vienna; a barge/barges will be placed at critical locations to improve navigability during low water periods	
Environmental relevance of planned activities:	What are the main expected environmental impacts?	No permanent environmental impacts are expected. No Natura 2000 permit is required; the national park exception permit was received; the permit under water law was received. As a precondition the safe anchoring of the barges must be ensured.
	Which measures are taken to mitigate these impacts?	No mitigation measures are required.

	Is water status expected to deteriorate?	No, as the measure is completely reversible.
(Possible) funding:	Connecting Europe Facility 2 (CEF 2)	
Status and next steps (incl. timing):	The calculations for safe anchorage are finalised, barges will be placed in the next low water period.	
AT 05: Support improvement of water level forecast		
Planned activities:	FAIRway Danube II project: upgrade of the Austrian water level forecast	
Environmental relevance of planned activities:	What are the main expected environmental impacts?	none
(Possible) funding:	Connecting Europe Facility 2 (CEF 2)	
Status and next steps (incl. timing):	The tender is planned to be published in spring 2025.	
AT 06: Support customer-friendly processing and dissemination of information, in particular integration of information in ECDIS		
Status and next steps (incl. timing):	viadonau publishes updated information on water depth in the form of bathymetric Inland ENCs. For critical locations IENCs are updated monthly. No major adaptations are foreseen at the moment.	

3.2.2. AT | Review of monitoring, rehabilitation and maintenance activities 2023

Riverbed surveying activities 2023



Fairway marking activities 2023

Due to the very limited cross-section of the Austrian stretch of the Danube, fairway relocation is usually no significant option for fairway maintenance at viadonau. The Supreme Navigation Authority (Ministry of Transport) still conducts weekly monitoring tours and in case navigation signs are missing or should be relocated, this information is registered in the Austrian marking database. viadonau then implements the required changes along the fairway. The system for remote monitoring of the buoy position is implemented but has repeated failures with individual buoys, which must be repaired by the manufacturer. As soon as this problem has been resolved, the information will be distributed via the ECDIS. Any changes in the fairway marking are always published in the IENCs.

Dredging activities 2023

Dredging site			Dumping or placement site		Beginning of service	End of service	Material	Utilisation	m3	Permits needed (see next table)
Name of location	from river-km	to river-km	from river-km	to river-km						
Weißkirchen	2014	2013.5	n/a	n/a	n/a	n/a	gravel	Dumping	7 507	1
Buchenau	1 912.4	1 911.5	n/a	n/a	n/a	n/a	gravel	Dumping	13 823	1

Fischamündung	1 906.1	1 905.1	n/a	n/a	n/a	n/a	gravel	Dumping	109 475	1
Regelsbrunn	1 899.0	1 897.8	n/a	n/a	n/a	n/a	gravel	Dumping	22 546	1
Rote Werd	1 897.2	1 895.9	n/a	n/a	n/a	n/a	gravel	Dumping	4 574	1
Petronell-Witzelsdorf	1 893.4	1 891.7	n/a	n/a	n/a	n/a	gravel	Dumping	721	1
Schwalbeninsel	1 890.0	1 888.7	n/a	n/a	n/a	n/a	gravel	Dumping	4 759	1
Treuschütt	1 888.6	1 887.6	n/a	n/a	n/a	n/a	gravel	Dumping	12 997	1
Hainburg	1 885.0	1 883.9	n/a	n/a	n/a	n/a	gravel	Dumping	10 326	1
Bedload trap Treuschütt	1 888.4	1 887.7	n/a	n/a	n/a	n/a	gravel	Dumping	65 937	2
Bedload trap Hainburg	1 885.0	1 884.2	n/a	n/a	n/a	n/a	gravel	Dumping	40 465	n/a
Port entrances and mooring sites:										
Albern	1918.3	1918.2	n/a	n/a	n/a	n/a	gravel	Dumping	2 579	n/a
Lobau	1916.6	1916.5	n/a	n/a	n/a	n/a	gravel	Dumping	1 355	n/a
Mannsdorf	1906.7	1906.6	n/a	n/a	n/a	n/a	gravel	Dumping	1 150	n/a
Bad Deutsch-Altenburg	1886.8	1886.6	n/a	n/a	n/a	n/a	gravel	Dumping	3 410	n/a

Referenced permit [No.]	Title of permit (original language)	Permitting authority	Permit applicable		valid until	Type of permit (e.g. environmental, water, navigation law)	Main conditions for permit
			from river-km	to river-km			
1	WSD – generelles Projekt "Regulierungsmaßnahmen zur Verbesserung der Schifffahrtsverhältnisse auf der Donau stromab des KW Freudenu"	Federal Ministry for Agriculture, Forestry, Environment and Water Management	1910.00	1872.70	21/03/2099	Water Law	<ul style="list-style-type: none"> A maximum of 50 % of dredged gravel may be used for structuring measures (river banks, islands), the rest is to be dumped into the river After high waters sediment in ford areas has to be removed as fast as possible at a width of 80/100 m As far as possible, ecological aspects shall be accounted for when planning single measures Dredging measures shall be kept to a minimum
2	Geschiebefang in der Furt Treuschütt	Administrative District Authority Bruck an der Leitha	1888.35	1887.70	30/04/2027	Water Law, Navigation Law, Nature Conservation Law	<ul style="list-style-type: none"> Establishment of ecological construction supervision and hydraulic construction supervision, drafting 5-annual monitoring reports. Final report after 10 years Monitoring the return rates in the sediment trap Safety distance to the gravel lower edge of at least 2.50 m Avoiding a bottom punch
3	Donaukraftwerk Aschach	Federal Ministry for Agriculture and Forestry	2163.40	2161.80	31/12/2050	Water Law, Navigation Law, Nature Conservation Law	<ul style="list-style-type: none"> Dredging measures are to be performed in due time in order to prevent negative effects on navigation due to sedimentation
4	Donaukraftwerk Ottensheim-Wilhering	Federal Ministry for Agriculture and Forestry	2147.60	2145.85	31/12/2059	Water Law, Navigation Law, Nature Conservation Law	<ul style="list-style-type: none"> Dredging measures are to be performed in due time in order to prevent negative effects on navigation due to sedimentation
5	Donaukraftwerk Wallsee-Mitterkirchen	Federal Ministry for	2096.50	2093.65	31/12/2055	Water Law, Navigation Law,	<ul style="list-style-type: none"> Dredging measures are to be performed in due time in order to

		Agriculture and Forestry				Nature Conservati on Law	prevent negative effects on navigation due to sedimentation
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3.2.3. AT | Status of operational budgets and investments 2023

Operational expenditures for conducted activities 2023 and budget needs 2024

Need area	Operational expenditures 2023	Required operational budget 2024	Secured operational budget 2024	Remaining financing gap 2024
Minimum fairway parameters (width/depth) – maintenance dredging	2 566 324 ¹	2 211 129 ²	2 211 129 ²	0
Surveying of the riverbed	1 008 652	2 312 977 ⁵	2 312 977 ⁵	0
Water level gauges	1 253 557			
Marking of the fairway	535 389	720 327	720 327	0
Availability of locks / lock chambers ³	-	-	-	-
Information on water levels and forecasts	46 208	48 257	48 257	0
Information on fairway depths ⁴	-	-	-	-
Information on marking plans	-	-	-	-
Meteorological information	-	-	-	-
Other needs	-	-	-	-
Sum (Euro)	5 410 130	5 292 690	5 292 690	0

¹ This amount includes only dredging expenditures, not the additional expenditures resulting from dumping the excavated material further upstream. The dredging expenditures are significantly lower than in past years, due to the positive impact of river engineering measures east of Vienna.

² Only dredging budget. Additional 1 753 674 EUR are available for costs resulting from the dumping of excavated material further upstream and external additions of sediment.

³ In Austria, the Verbund Hydropower AG is responsible for maintaining the lock infrastructure (revisions). viadonau has no expenditures in this area.

⁴ Information on fairway depths is provided on the DoRIS website (<http://www.doris.bmvit.gv.at/>) and the DoRIS mobile App. Since many other services are provided as well (e.g. bridge clearance), the expenditures and budget needs for information on fairway depths cannot be displayed separately.

⁵ As of 2024, in the budget both activities were merged.

Ongoing and planned investments to improve waterway management

Equipment/service of planned or ongoing investment	investment costs	already secured investment costs (state budget or other financing)	% thereof EU co-financed
Planned: multifunctional pontoon	appr. 3 500 000	financed from national funds, investment secured	
Planned: upgraded water level forecast (FAIRway Danube II)	450 000	450 000	50%
Sum (Euro)	3 950 000	3 950 000	

4. Slovakia

4.1. SK | Monitoring of GNS “hard” components

4.1.1. SK | Status of TEN-T minimum requirement: availability of the navigation channel

Number of days with fairway depths $\geq 2.50\text{m}$ at main critical locations 2015-2023

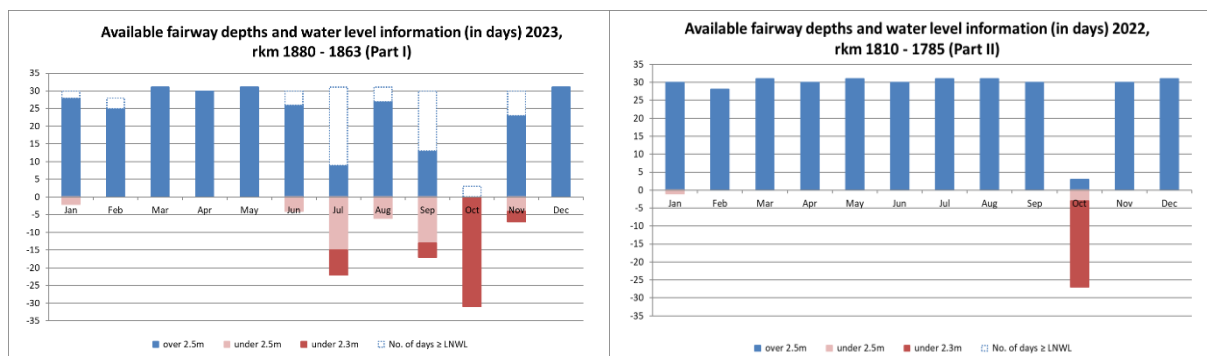
for a fairway width according to Level of Service 1 (targeted minimum fairway widths are 60 to 100 m in Slovakia and on the Slovak-Hungarian border section and 40 to 80 m on the Slovak-Austrian section, CEMT class VIb – VIc)

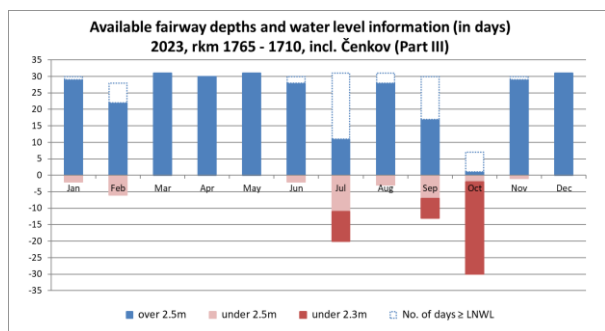
Critical location	2015	2016	2017	2018	2019	2020	2021	2022	2023
part I. (rkm 1880 – 1863)	287	310	304	254	331	337	316	311	274
part II. (rkm 1810 – 1785)	307	338	324	236	302	341	283	266	336
part III. (rkm 1765 – 1710) including Čenkov	223	319	303	224	281	286	282	228	288

Number of days with water level \geq LNWL at main critical locations 2015-2023

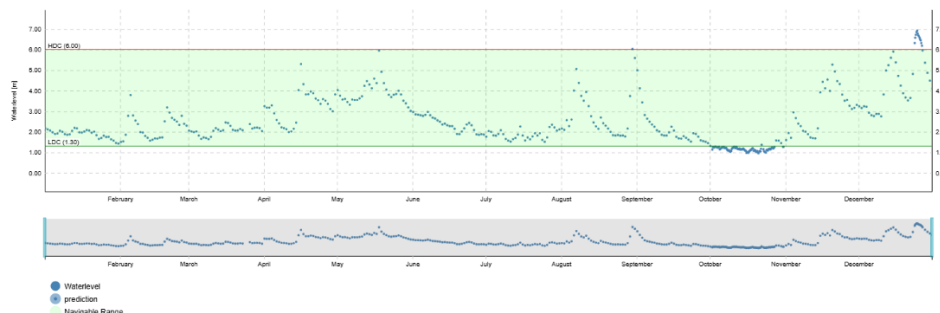
Critical location	Reference gauge	2015	2016	2017	2018	2019	2020	2021	2022	2023
part I. (rkm 1880 – 1863)	Devin	294	345	340	324	357	363	350	346	336
part II. (rkm 1810 – 1785)	Medvedov / Gonyu	259	325	326	252	311	319	297	281	333
part III. (rkm 1765 – 1710) including Čenkov	Sturovo / Komarom	288	353	332	259	333	362	338	314	340

In Slovakia the common Danube stretch with Hungary contains the most critical bottlenecks. In 2023, the most critical bottleneck for navigation was the sector upstream the Gabčíkovo locks (where the target fairway depth of $\geq 2.50\text{m}$ was not achieved for over 90 days) as well as again the location Čenkov (1735,50 – 1733,70; “Nyerges gázló” in HU).





DEVIN: Waterlevel (1.1.2023 - 31.12.2023)



4.1.2. SK | Status of TEN-T minimum requirement: availability of minimum height under bridges

The current bridge clearance of all 6 national bridges, the lock bridge at Gabčíkovo and the 5 bridges between Slovakia and Hungary is published at least daily. Even at the highest navigable water level (HNWL), at which navigation is suspended, the clearance is never below 5.25 meters. Accordingly, Slovakia achieves 100% of this target of the TEN-T regulation at all times that navigation is not suspended.

4.2. SK | Monitoring of GNS “soft” components

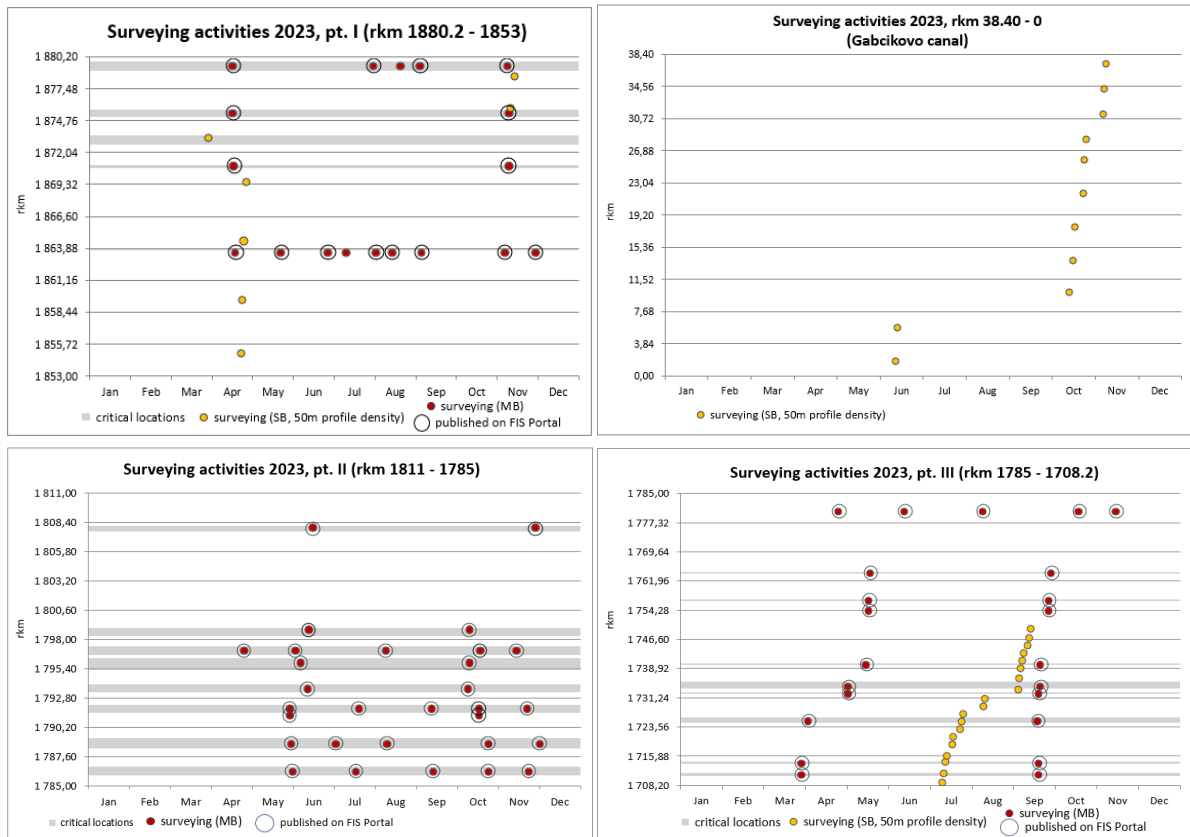
4.2.1. SK | Status of and outlook on needed actions according to the updated FRMMP

SK 01: Secure education and provision of welltrained staff in the short, medium and long term	
Status and next steps (incl. timing):	Currently no specific trainings planned. Because of the low interest in working in this field, hiring new employees is difficult. One surveying vessel will be upgraded with a new sensor within the FAIRway Danube II project (procurement was launched on 23.07.2024 via the Elektronická platforma verejného obstarávania (ePVO) of the Slovak Republic).
SK 02: Support further development of the existing waterway management tool (WAMS)	
Planned activities:	Upgrade of WAMS planned within FAIRway Danube II
Environmental relevance of planned activities:	What are the main expected environmental impacts? none
(Possible) funding:	Connecting Europe Facility 2 (CEF2)
Status and next steps (incl. timing):	The procurement procedure for the upgrade of the SK WAMS System has to be launched by end of March 2025.
SK 03: Support cross-border harmonisation of monitoring standards, as well as exchange and synchronisation of data	
Status and next steps (incl. timing):	Currently there are no special activities ongoing in the Transboundary Water Commissions.

SK 04: Support acquisition of up-to-date marking vessel(s) (incl. small speed boat for fast reactions) with suitable equipment		
Status and next steps (incl. timing):	Currently no procurements of marking equipment is foreseen.	
SK 05: Support acquisition of intelligent marking system, including AIS AtoNs and virtual buoys Support the establishment of an automated monitoring system, including the dissemination of current marking information		
Status and next steps (incl. timing):	Currently no procurements of marking equipment is foreseen.	
SK 06: Support acquisition of up-to-date dredging equipment		
Planned activities:	ongoing DaReM Project: Delivery of the following equipment: <ul style="list-style-type: none"> Floating platforms with a hydraulic excavator on a crawler chassis (3x+3x) Self-discharging non-self-propelled push boats (2x) Tugboat reconstruction (1x) Suction dredging kit (1x) Dump trucks with tandem trailers (3x) 	
Environmental relevance of planned activities:	What are the main expected environmental impacts?	If dredging occurs in or near protected areas such as Natura 2000 sites and if the dredged material is stored on the banks of the Danube and these sites are located in protected areas, additional permits from the competent organisations are required. Usually, the only actual permit that is needed for dredging activities is issued by the Transport Authority, who publishes NtS for the time period of any dredging works.
	Which measures are taken to mitigate these impacts?	
	Is water status expected to deteriorate?	no
(Possible) funding:	Operational Programme Integrated Infrastructure 2014-2020	
Status and next steps (incl. timing):	The equipment should have been delivered by end of the year 2023, the three dump trucks are expected by June 2024.	
SK 07: Secure education and provision of welltrained staff in the short, medium and long term		
Status and next steps (incl. timing):	Pilot operation and training period for floating platforms with excavators until the end of 2023.	
SK 08: Support implementation of semiautomated marking plans based on a common Fairway Management System		
Status and next steps (incl. timing):	Currently no activities ongoing/planned.	
SK 09: Support customer-friendly processing and dissemination of information Support the upgrade of IENCs with bathymetric information		
Status and next steps (incl. timing):	Currently no activities ongoing/planned.	
SK 10: Support acquisition of sensors to measure vertical bridge clearance		
Status and next steps (incl. timing):	For the 6 Slovak bridges (without bridge at Gabčíkovo) as well as the 5 bridges between Slovakia and Hungary real-time bridge clearance information is published on EuRIS portal.	

4.2.1.SK | Review of monitoring, rehabilitation and maintenance activities 2023

Riverbed surveying activities 2023



Fairway marking activities 2023

The fairway marking is done on a weekly basis in Slovakia on the entire Slovak Danube stretch, based on the approved Project of the Marking of the fairway. The marking vessel is also equipped with an echosounder, so the marking tours also serve as quick checks of the fairway. Nevertheless, data is not post-processed but used solely for the purpose of marking. Changes of the fairway have not been done in 2023, only the minor changes were realised by the marking vessels staff with movement of the buoys based on actual water level condition (entire stretch).

Dredging activities 2023

Dredging site			Dumping or placement site		Beginning of service	End of service	Material	Utilisation	m3	Permits needed (see next table)
Name of location	from river-km	to river-km	from river-km	to river-km						
Zdrž Hrušov	32,3	31,6	n/a	n/a	29.3.2023	20.6.2023	gravel	Dumping	11 134	1
Obratisko Devín	1879	1879,6	n/a	n/a	23.8.2023	13.11.2023	gravel	Left bank of Danube rkm 1862	11 620	1
Zemník	1863,7	1864,5	n/a	n/a	12.4.2023	7.12.2023	gravel	Gravel pit Petržalka (rkm 1862,2)	109 475	1

Referen- ced permit [No.]	Title of permit (original language)	Permitting authority	Permit applicable		valid until	Type of permit (e.g. environ- mental, water, navigation law)	Main conditions for permit
			from river- km	to river- km			
1	Povolenie na výkon činnosti	Transport Authority	1709	1880	end of 2024	navigation law	• n/a

4.2.2. SK | Status of operational budgets and investments 2023

Operational expenditures for conducted activities 2023 and budget needs 2024

Need area	Operational expenditures 2023	Required operational budget 2024	Secured operational budget 2024	Remaining financing gap 2024
Minimum fairway parameters (width/depth) – maintenance dredging	2 951 108	3 214 000	3 214 000	0
Surveying of the riverbed	314 778	312 000	312 000	0
Water level gauges	-	-	-	-
Marking of the fairway	766 154	700 000	700 000	0
Availability of locks / lock chambers	-	-	-	-
Information on water levels and forecasts	-	-	-	-
Information on fairway depths	-	-	-	-
Information on marking plans	-	-	-	-
Meteorological information	-	-	-	-
Other needs	-	-	-	-
Sum (Euro)	4 032 040	4 226 000	4 226 000	0

Ongoing and planned investments to improve waterway management

Equipment/service of planned or ongoing investment	(estimated) investment costs	already secured investment costs (state budget or other financing)	% thereof EU co- financed
Planned: Procurement of one multibeam sensor to upgrade the surveying vessel (FAIRway Danube II)	110 000	110 000	85%
Planned: Upgrade of the SK WAMS System (FAIRway Danube II)	456 000	456 000	85%
Sum (Euro)	566 000	566 000	

5. Hungary

5.1. HU | Monitoring of GNS “hard” components

5.1.1. HU | Status of TEN-T minimum requirement: availability of the navigation channel

In 2022, the target fairway depth of $\geq 2.50\text{m}$ was not reached at several critical locations along the entire Hungarian Danube, in some cases for more than 150 days. Three of the most critical locations were Nyergesújfalu, Dömös alsó and Solt with only 266, 208 and 223 days with fairway depths of $\geq 2.50\text{m}$.

Section rkm 1811 - 1708

Number of days with fairway depths $\geq 2.50\text{m}$ at main critical locations 2015-2023

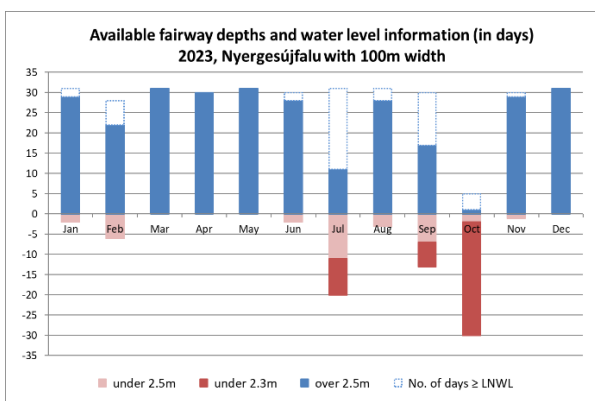
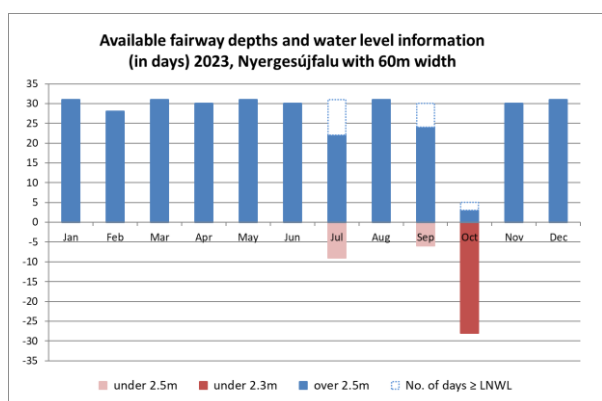
Fairway width (range of values accounts for different curve radii): 60 to 100 m on the Slovak - Hungarian border section (Nyergesújfalu), CEMT class Vlb – VIc

Critical location	2015	2016	2017	2018	2019	2020	2021	2022	2023
Nyergesújfalu critical location with 60 meters wide fairway	244	326	327	245	309	330	301	266	322
Nyergesújfalu critical location with 100 meters wide fairway	213	293	304	215	282	286	278	227	288

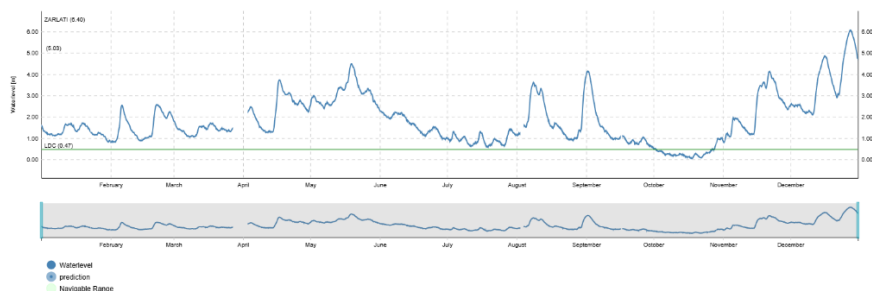
Number of days with water level \geq LNWL at main critical locations 2015-2023

Critical location	Reference gauge	2015	2016	2017	2018	2019	2020	2021	2022	2023
Nyergesújfalu	Esztergom	294	349	336	261	332	361	335	307	339

In the critical location Nyergesújfalu or Nyerges gázló (1735,50 – 1733,70; “Čenkov” in SK) the riverbed consists not of gravel but rocky bottom and maintenance activities soon reach their limits; only physical intervention could solve the problem. Whenever water levels drop this location becomes a major obstacle for navigation. A reduction of the fairway width is thus often the only option.



ESZTERGOM: Waterlevel (1.1.2023 - 31.12.2023)



Section rkm 1,708 - 1,560

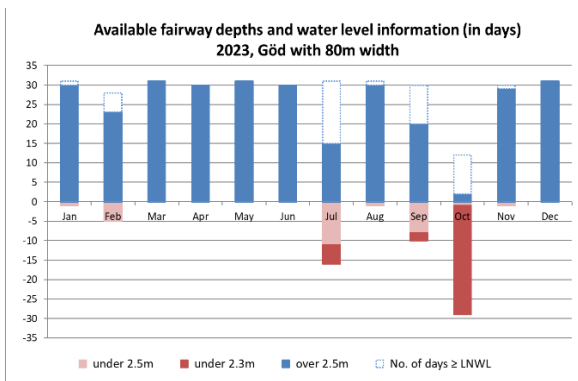
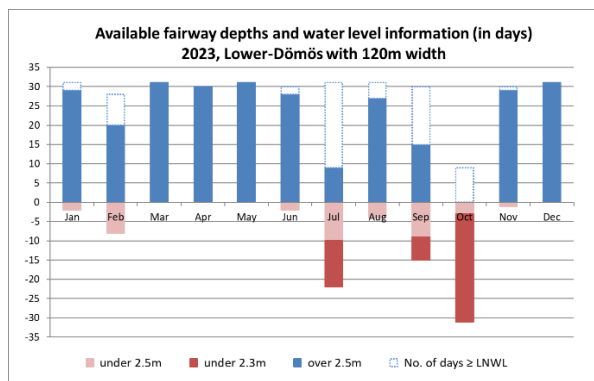
Number of days with fairway depths $\geq 2.5\text{m}$ at main critical locations 2015-2023

Fairway width (range of values accounts for different curve radii): 80 to 120 m Hungary, CEMT class VIb – VIc

Critical location	2015	2016	2017	2018	2019	2020	2021	2022	2023
Göd critical location with 80 meters wide fairway	208	299	266	229	296	291	293	226	302
Dömös alsó critical location with 120 meters wide fairway	205	279	290	221	277	281	284	208	280
Budafok critical location with 60 meters wide fairway	229	310	257	244	296	322	356	245	319

Number of days with water level \geq LNWL at main critical locations 2015-2023

Critical location	Reference gauges	2015	2016	2017	2018	2019	2020	2021	2022	2023
Dömös-alsó	Nagymaros	322	357	362	302	355	366	359	343	343
Göd	Budapest	320	357	352	304	362	366	359	355	346



Section rkm 1,560 - 1,433

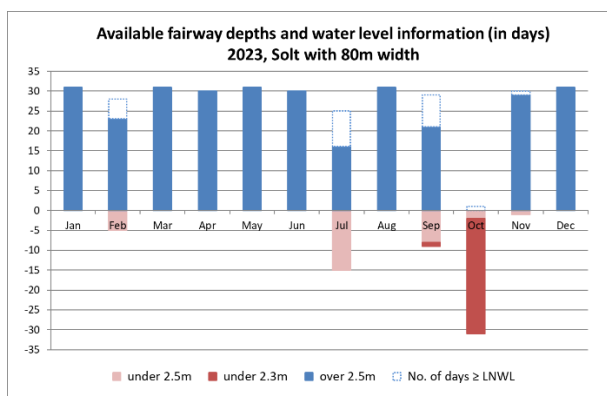
Number of days with fairway depths $\geq 2.5\text{m}$ at main critical locations 2015-2023

Fairway width (range of values accounts for different curve radii): 80 to 120 m Hungary, CEMT class VIb – Vic

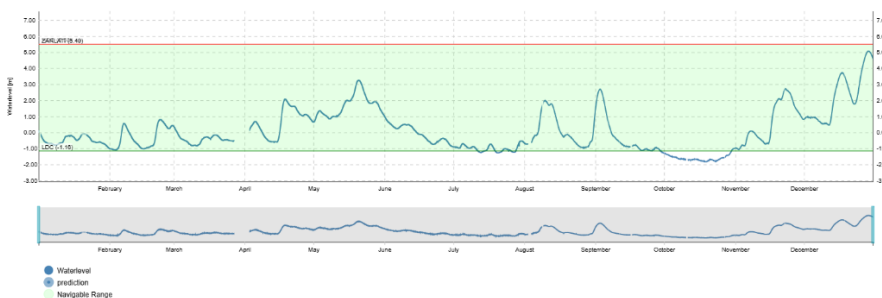
Critical location	2015	2016	2017	2018	2019	2020	2021	2022	2023
Solt critical location with 60 meters wide fairway	277	344	330	254	322	285	274	223	-
Solt critical location with 100 meters wide fairway	210	277	284	208	263	235	236	178	304 (at 80m width)

Number of days with water level \geq LNWL at main critical locations 2014-2022

Critical location	Reference gauges	2015	2016	2017	2018	2019	2020	2021	2022	2023
Solt	Dunaföldvár	270	339	326	251	319	340	309	276	328



DUNAFOLDVAR: Waterlevel (1.1.2023 - 31.12.2023)



5.1.2. HU | Status of TEN-T minimum requirement: availability of minimum height under bridges

Important remark: Hungary does not yet calculate and publish information on the minimum height under bridges. Within the FAIRway Danube II project this task will be developed; information on compliance with this TEN-T minimum requirement will be published as soon as possible.

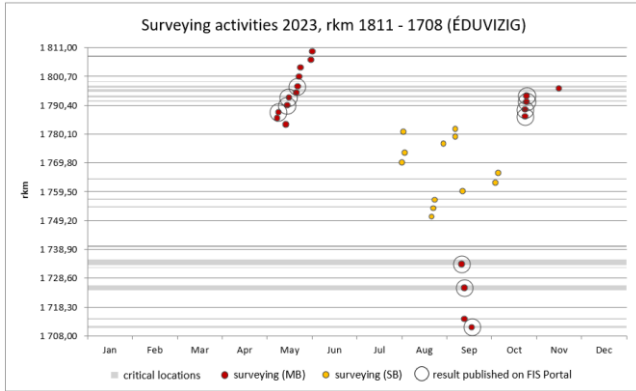
5.2. HU | Monitoring of GNS “soft” components

5.2.1. HU | Status of and outlook on needed actions according to the updated FRMMP

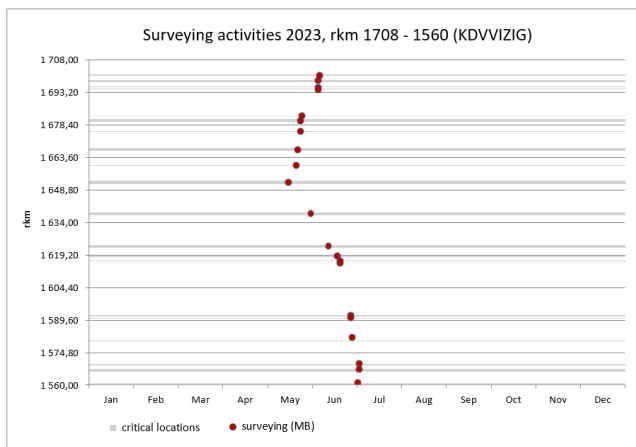
HU 01: Support acquisition of up-to-date multi-beam sensor(s)		
Planned activities:	FAIRway Danube II: Procurements of 1 new surveying vessel, 1 upgraded surveying vessel, 1 aquatic drone	
Environmental relevance of planned activities:	What are the main expected environmental impacts?	none
(Possible) funding:	Connecting Europe Facility 2 (CEF 2)	
Status and next steps (incl. timing):	Procurements are to be launched by May 2025.	
HU 02: Support the replacement of the existing signalisation with AIS AtoNs to remotely control the buoys' positioning		
Status and next steps (incl. timing):	<p>In the framework of the already concluded project “ Improving the Hungarian marking system” (HUMARK) the following equipment was procured and is since in operation:</p> <ul style="list-style-type: none"> • 3 new marking vessels, 3 high-speed patrol boats • 115 intelligent light buoys, 210 pcs new floating unlighted buoys • 55 light bank markers • 300 new bank marks and navigation control marks • 400 new river km marks <p>No further activities are planned at the moment.</p>	
HU 03: Support further development of the existing waterway management tool (WAMS)		
Planned activities:	Further development of WAMS within FAIRway Danube II project	
Environmental relevance of planned activities:	What are the main expected environmental impacts?	none
(Possible) funding:	Connecting Europe Facility 2 (CEF2)	
Status and next steps (incl. timing):	Procurement is to be launched by June 2025.	
HU 04: Support acquisition of modern, multi-functional ice breakers		
Status and next steps (incl. timing):	Currently it is not clear how the equipment could be financed. No ongoing activities.	
HU 05: Support the allocation of sufficient budget to allow for dredging interventions		
Status and next steps (incl. timing):	No specific activities planned at the moment.	
HU 06: Support customer-friendly processing and dissemination of information, including IENCs		
Status and next steps (incl. timing):	No specific activities planned at the moment.	
HU 07: Support the calculation of vertical bridge clearance (e.g. laser scanner and hydrologic modelling)		
Planned activities:	FAIRway Danube II: Procurement of 6 bridge clearance sensors; information should be published on EuRIS Portal.	
Environmental relevance of planned activities:	What are the main expected environmental impacts?	None
(Possible) funding:	Connecting Europe Facility 2 (CEF2)	
Status and next steps (incl. timing):	Procurement is to be launched by June 2025.	

5.2.2. HU | Review of monitoring, rehabilitation and maintenance activities 2023

Riverbed surveying activities 2023

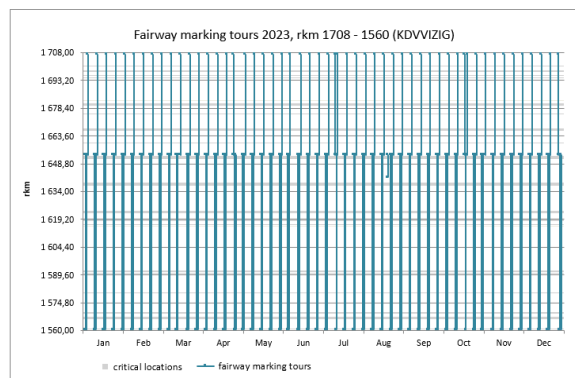
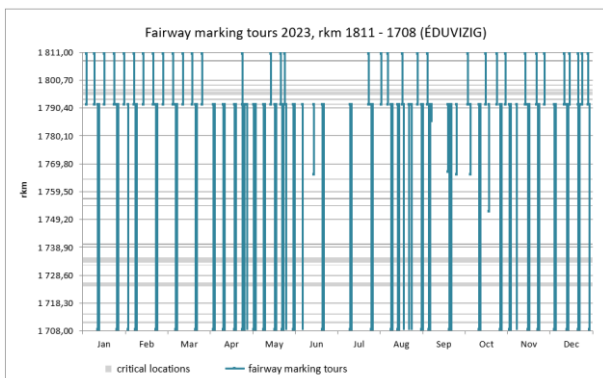


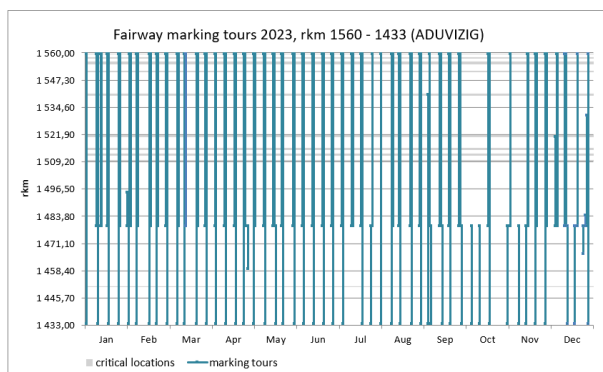
The (timely) publication of surveying results on the FIS Portal is lacking. Bathymetric data on bottlenecks is however published on PannonRIS. No data from ADUVIZIG. However, in the lower part of the Hungarian Danube the critical location “Solt” was surveyed twice in 2023.



Fairway marking activities 2023

Marking tours are conducted regularly by the three VIZIGs on their respective Danube sections. Major relocations of the fairway are usually not possible due to the limited cross-section of the Danube in Hungary and the riverbed is rather stable. However, widening and narrowing of the fairway is done based on hydrological conditions.





Dredging activities 2023

No dredging activities were performed in 2023 on the Hungarian Danube.

5.2.3. HU | Status of operational budgets and investments 2023

Operational expenditures for conducted activities 2023 and budget needs 2024

Need area	Operational expenditures 2023	Required operational budget 2024	Secured operational budget 2024	Remaining financing gap 2024
Minimum fairway parameters (width/depth) – maintenance dredging	0	unknown	0	unknown
Surveying of the riverbed	35 800	33 900	33 900	0
Water level gauges	11 400	11 420	11 420	0
Marking of the fairway	376 562	657 977	657 977	0
Availability of locks / lock chambers	-	-	-	-
Information on water levels and forecasts	5 000	11 500	11 500	0
Information on fairway depths	343	32 352	32 352	0
Information on marking plans	686	18 705	18 705	0
Meteorological information	-	-	-	-
Other needs ¹	40 000	40 200	40 200	0
Sum (Euro)	469 791	806 054	806 054	0

¹ Costs for RIS operation.

Ongoing and planned investments to improve waterway management

Equipment/service of planned or ongoing investment	(estimated) investment costs	already secured investment costs (state budget or other financing)	% thereof EU co-financed
Planned: Procurement of one new surveying vessel (FAIRway Danube II)	613 615	613 615	85%
Planned: Upgrade of one surveying vessel (FAIRway Danube II)	332 125	332 125	
Planned: Procurement of one aquatic drone (FAIRway Danube II)	588 373	588 373	
Planned: Upgrade of the HU WAMS System (FAIRway Danube II)	200 000	200 000	
Planned: Procurement of 6 bridge clearance sensors (FAIRway Danube II)	320 941	320 941	
Sum (Euro)	2 055 054	2 055 054	

6. Croatia

6.1. HR | Monitoring of GNS “hard” components

6.1.1. HR | Status of TEN-T minimum requirement: availability of the navigation channel

Danube

Number of days with fairway depths $\geq 2.50\text{m}$ at main critical locations 2015-2023

for a fairway width of 100m (CEMT class VIc)

Critical location	2015	2016	2017	2018	2019	2020	2021	2022	2023
Apatin	365*	366*	363*	365*	365*	366	365	365	365
Mohovo	-	-	-	-	-	-	306	237	344

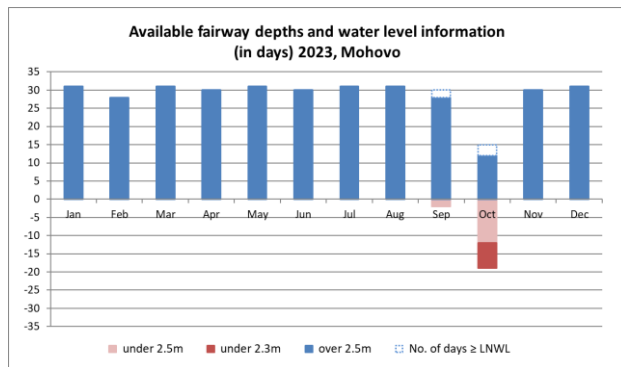
*Data provided by PLOVPUT

The Danube stretch in Croatia is characterised by sufficient depths but, due to river morphology (large number of sandbars and islands), the achieved fairway width varies. Exception is the critical location of Mohovo with rocky river bottom which represents the major limiting bottleneck of the Croatian-Serbian Danube stretch. The maintenance measures consist solely of limiting the width of the fairway; only physical intervention could solve the problem.

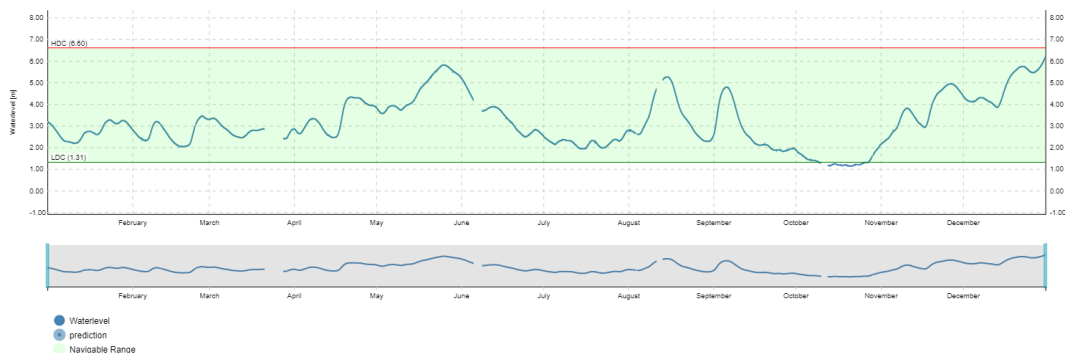
Number of days with water levels $\geq \text{LNWL}$ at main critical locations 2015-2023

Critical location	Reference gauges	2015	2016	2017	2018	2019	2020	2021	2022	2023
Apatin *	Apatin	315*	353*	352*	266*	331*	366	319	304	340
Mohovo	Mohovo	-	-	-	-	-	-	-	-	347

*Data provided by PLOVPUT



VODOMJER MOHOVO: Waterlevel (1.1.2023 - 31.12.2023)



6.1.2. HR | Status of TEN-T minimum requirement: availability of minimum height under bridges

Important remark: Croatia does not yet calculate and publish information on the minimum height under bridges. Serbia is calculating and publishing these values; information on compliance with this TEN-T minimum requirement will be published as soon as possible.

6.2. HR | Monitoring of GNS “soft” components

6.2.1. HR | Status of and outlook on needed actions according to the updated FRMMP

HR 01: Support retrofit and acquisition of remotely controlled aquatic and river drones		
Planned activities:	FAIRway Danube II: <ul style="list-style-type: none"> • Procurement of 1 aquatic drone with MB sensor • Procurement of 1 aeronautical drone with lidar sensor • Upgrade of the sensor of 1 surveying vessel 	
Environmental relevance of planned activities:	What are the main expected environmental impacts?	none
(Possible) funding:	Connecting Europe Facility 2 (CEF2)	
Status and next steps (incl. timing):	The procurement procedures for the listed equipment is to be launched by the end of May 2025.	
HR 02: Secure education and provision of well-trained staff in the short, medium and long term		
Status and next steps (incl. timing):	Currently no specific trainings envisaged.	
HR 03: Secure predictable and sufficient financial means for waterway maintenance		
Status and next steps (incl. timing):	Currently no specific activities envisaged.	
HR 04: Support further development of the WAMOS/WAMS System		
Support acquisition of adequate IT tools (hardware and software)		
Planned activities:	Further development of WAMS within FAIRway Danube II project	
Environmental relevance of planned activities:	What are the main expected environmental impacts?	none
(Possible) funding:	Connecting Europe Facility 2 (CEF2)	
Status and next steps (incl. timing):	The procurement procedure for the upgrade of the HR WAMS is to be launched by the end of March 2025.	
HR 05: Implementation of monitoring activities that will provide sufficient data for the development of technical documentation in order to resolve navigational bottlenecks		
Planned activities:	Building a stable database for modelling different scenarios of resolving navigational bottlenecks and building a database (incl. GIS database) of ecological data	
Environmental relevance of planned activities:	What are the main expected environmental impacts?	none, as only data is gathered so far
(Possible) funding:	Connecting Europe Facility	
Status and next steps (incl. timing):	Within the ongoing Preparing FAIRway 2 project MMPI has contracted services to monitor the hydrological, hydraulic and morphological characteristics of the Danube (hydrographic measurements, measurement of velocities and sediment transport, etc.) and develop an inventory of biodiversity components of the	

	Croatian-Serbian common section of the Danube (fish sampling, habitat monitoring, establishment of a GIS database). The activity will be continued in 2024, providing data for the future modelling.	
HR 06: Development of adequate technical solutions in order to improve fairway stability (capital dredging on critical locations in the upcoming period of 10 years)		
Investigate “working with nature” approaches for the resolution of navigational bottlenecks		
Planned activities:	FAIRway Danube II pilot operation of flexible infrastructure elements as an approach for nature based solutions in waterway management: Placement of barges at the critical point "Drau estuary" to test the suitability of the approach	
Environmental relevance of planned activities:	What are the main expected environmental impacts?	No permanent environmental impacts are expected. It is not yet entirely clear what kind of permits are needed for placing the barges. Ensuring safe anchorage of the barges and obtaining necessary permits will be part of the FAIRway Danube II project.
	Which measures are taken to mitigate these impacts?	No mitigation measures necessary.
	Is water status expected to deteriorate?	No, the measure is completely reversible.
(Possible) funding:	Connecting Europe Facility 2 (CEF2)	
Status and next steps (incl. timing):	The tender procedure started in summer 2024. Contracting is foreseen in early 2025.	
HR 07: Support the further development of the water level forecast (geographical extension and continued quality improvements)		
Status and next steps (incl. timing):	Currently no activities planned.	

6.2.2. HR | Other waterway management activities that were not declared as needed actions in the FRMMP

Upgrade of the marking system on Sava/Drava:

- 2x multifunctional marking vessels to be operated on Sava and Drava delivered in early 2024
- 80 AtoNS already delivered, upgrade of AIS system completed

Delivery of 20 buoys with fixed sensors in the framework of the FAIRway Danube II project.

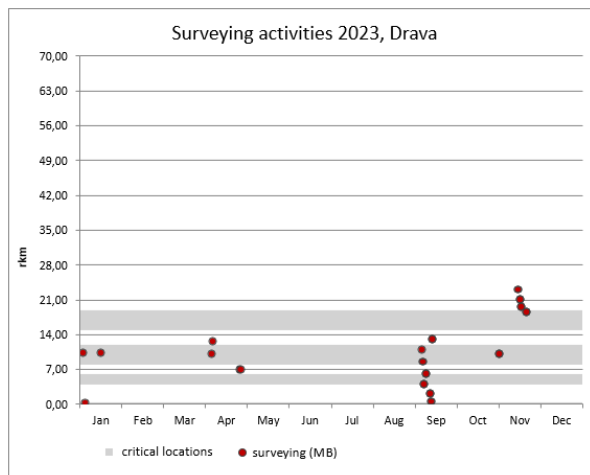
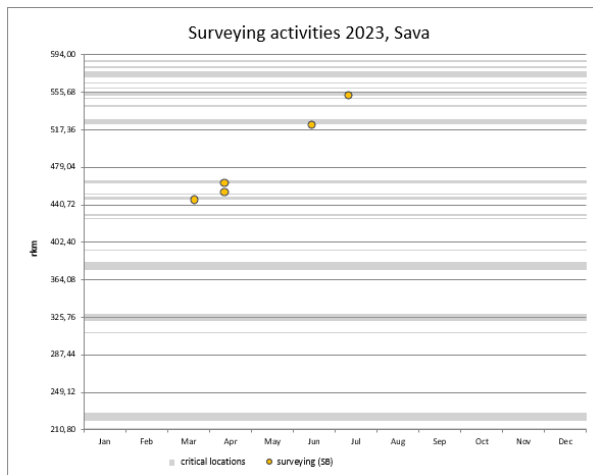
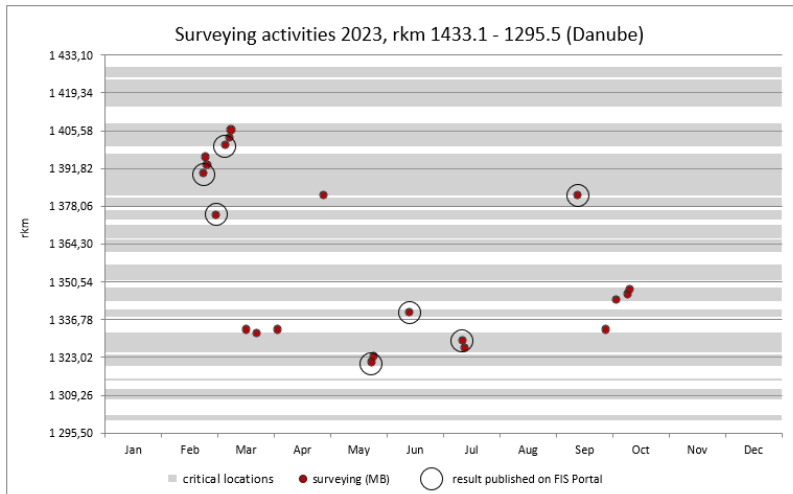
The procurement will start in December 2024.

6.2.3. HR | Review of monitoring, rehabilitation and maintenance activities 2023

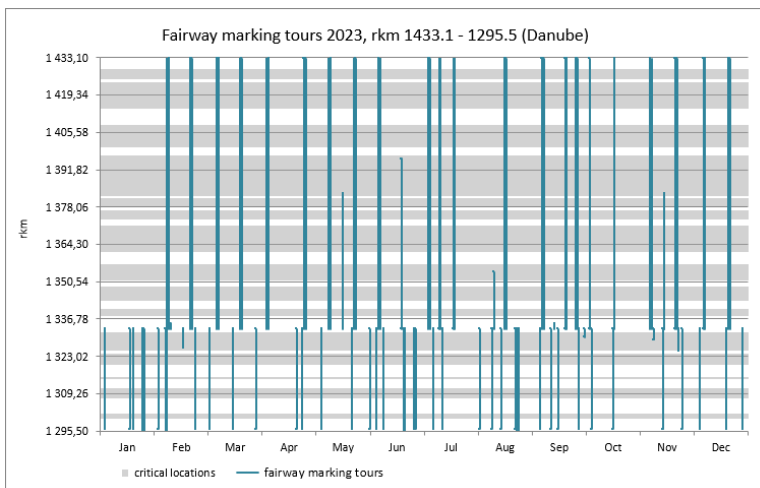
Riverbed surveying activities 2023

Regular monitoring of the fairway is performed approximately every two weeks by means of single-beam technology as part of the regular marking tours (with marking vessels) in order to control fairway dimensions, critical locations for navigation and the positioning of navigation marks.

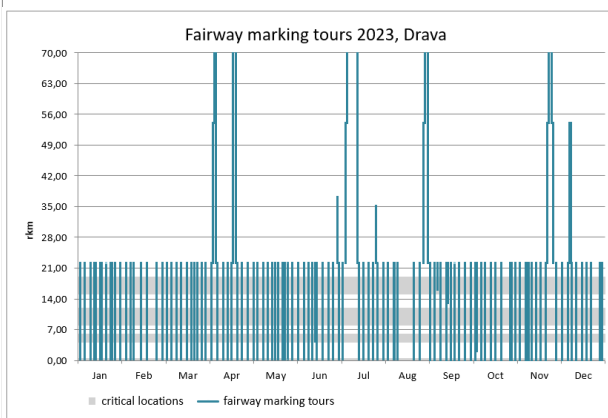
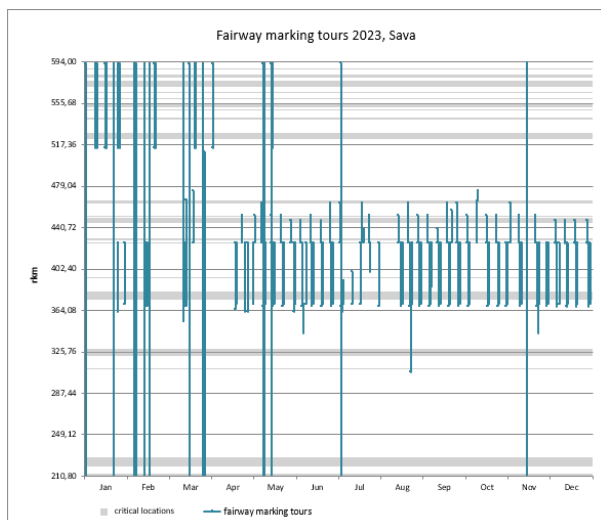
Detailed riverbed surveying is performed when required on specific sections in order to determine the detailed riverbed morphology.



Fairway marking activities 2023



The marking vessel is equipped with an echo-sounder, so the marking tours also serve as quick checks of the fairway. Nevertheless, data is not post-processed but used solely for the purpose of marking. The fairway marking is done approximately every two weeks on the Danube and Sava, based on a work plan.



Dredging activities 2023

Dredging site			Dumping or placement site		Beginning of service	End of service	Material	Utilisation	m3	Permits needed (see next table)
Name of location	from river-km	to river-km	from river-km	to river-km						
Gušće (Sava)	368+600	370+350	368+600	370+350	01.01.2023	01.07.2023	sand and gravel mixed	dumping	24357.00	no
Davor I (Sava)	217+847	218+597	217+847	218+597	01.01.2023	01.07.2023	sand and gravel mixed	dumping	2253.00	no
Davor II (Sava)	221+547	221+697	221+547	221+697	01.01.2023	01.07.2023	sand and gravel mixed	dumping	1958.00	no
Lonja (Sava)	551+800	553+000	551+800	553+000	01.01.2023	01.07.2023	sand	dumping	28792.00	no
Nemetin (Drava)	9+200	11+500	13+870	14+150	01.01.2023	01.02.2023	sand	dumping	5171.58	no
Vukovar (Danube)	1332+800	1333+100	1332+300	1332+800	01.02.2023	03.04.2023	sand	dumping	11085.59	no

6.2.4. HR | Status of operational budgets and investments 2023

Operational expenditures for conducted activities 2023 and budget needs 2024

Need area	Operational expenditures 2023	Required operational budget 2024	Secured operational budget 2024	Remaining financing gap 2024
Minimum fairway parameters (width/depth) – maintenance dredging	1 145 000	2 400 000	2 400 000	0
Surveying of the riverbed	n/a	n/a	n/a	n/a
Water level gauges	17 000	17 000	17 000	0
Marking of the fairway	200 000	300 000	300 000	0
Availability of locks / lock chambers	n/a	n/a	n/a	n/a
Information on water levels and forecasts	30 000 (DHMZ)	30 000 (DHMZ)	30 000 (DHMZ)	0
Information on fairway depths	n/a	n/a	n/a	n/a
Information on marking plans	n/a	n/a	n/a	n/a
Meteorological information	5 000 (DHMZ)	5 000 (DHMZ)	5 000 (DHMZ)	0
Other needs	app 4.5 mil€	app 2.5 mil€	app 2.5 mil€	0
Sum (Euro)	5 897 000	5 252 000	5 252 000	0

Ongoing and planned investments to improve waterway management

Equipment/service of planned or ongoing investment	(estimated) investment costs	already secured investment costs (state budget or other financing)	% thereof EU co-financed
Planned: Procurement of one aeronautical drone with lidar sensor (FAIRway Danube II)	60 000	60 000	50%
Planned: Upgrade of one surveying vessel (new sensor) (FAIRway Danube II)	240 000	240 000	
Planned: Procurement of one aquatic drone (FAIRway Danube II)	360 000	360 000	
Planned: Upgrade of the HR WAMS System (FAIRway Danube II)	275 000	275 000	
Planned: Pilot operation of flexible infrastructure (FAIRway Danube II)	1 361 000	1 361 000	
Planned: Procurement of 20 buoys (FAIRway Danube II)	540 000	540 000	
Sum (Euro)	2 836 000	2 836 000	

7. Romania

7.1. RO | Monitoring of GNS “hard” components

7.1.1. RO | Status of TEN-T minimum requirement: availability of the navigation channel

The **Administration of the Lower Danube (AFDJ)** and the **Administration of the Navigable Canals (ACN)** are responsible for fairway maintenance, rehabilitation and upgrade. Since AFDJ is currently in the process of recalculating the Low Navigable Water Level at certain critical locations, the achievement of 2.50 m fairway depth in relation to the number of days above Low Navigable Water Level is not always correct.

Danube

Number of days with fairway depths \geq 2.50m at main critical locations 2015-2023

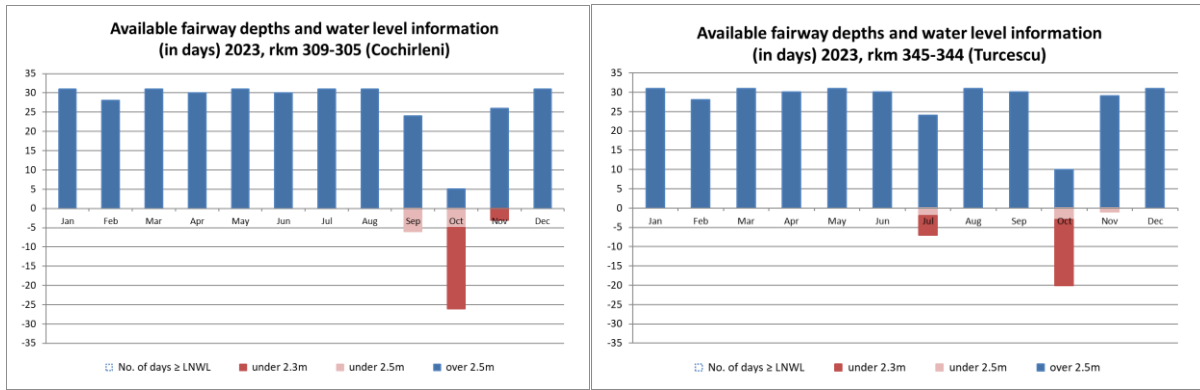
for a fairway width of 80m to 100m (CEMT class VII)

Critical location	2015	2016	2017	2018	2019	2020	2021	2022	2023
Bechet (100m fairway width)	285	351	357	317	342	366	336	323	344
Corabia (100m fairway width)	272	352	355	317	308	362	326	297	342
Turcescu (100m fairway width)	260	301	312	253	265	359	326	316	337
Caragheorghe (100m fairway width)	-	-	-	-	-	-	323	275	351
Cochirleni (80m fairway width)	236	257	200	201	225	302	316	270	329

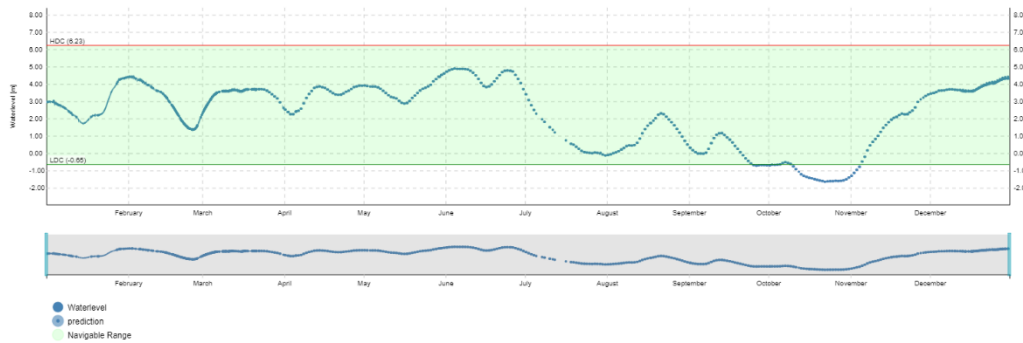
Number of days with water levels \geq LNWL at main critical locations 2015-2023

Critical location	Reference gauges	2015	2016	2017	2018	2019	2020	2021	2022	2023
Bechet	Bechet	277	348	309	322	297	350	314	255	329
Corabia	Corabia	258	348	285	317	265	328	304	244	321
Turcescu	Calarasi	279	348	330	290	276	342	307	246	314
Cochirleni	Cernavoda	295	355	355	301	302	356	323	262	331

In the downstream sector of Calarasi (Caragheorghe and Cochirleni), depths below 2.50m have been encountered only for October and few days in September, amounting to 37 days in the most critical location Cochirleni. In the maritime sector of the Danube the year 2023 showed good navigation conditions. It is noteworthy that in this sector the minimum navigation depth is 7.32m (24 feet).



WATERWAY GAUGE CERNAVODA: Waterlevel (1.1.2023 - 31.12.2023)



Danube-Black Sea Canal

The Danube Black Sea canals bottom is dredged 1 meter below the Danube River, so for the entire period 2012 – December 2023 fairway depths were over 2.5m on the Danube Black Sea Canal (DBSC) and the Poarta Albă-Midia Năvodari Canal (PAMNC). Between Cernavoda and Agiea locks minimum depths were 7m, which allows maritime ships to access the Basarabi and Medgidia ports.

In the period January –December 2023 there were no restrictions for navigation due to low navigable water levels.

Nevertheless, navigation on navigable canals was restricted or closed due to meteorological conditions as follows:

- Danube-Black Sea Canal: due to fog conditions (18 hours) and due to strong wind conditions (884 hours). In these conditions the measures taken by Romanian Naval Authority were to close the port of Constanta (for DBSC) and port of Midia (for PAMNC) and the measures taken by ACN were to restrict navigation on the canals.

7.1.2. RO | Status of TEN-T minimum requirement: availability of minimum height under bridges

Important remark: Romania does not yet calculate and publish information on the minimum height under bridges. Within the FAIRway Danube II project this task will be developed; information on compliance with this TEN-T minimum requirement will be published as soon as possible.

7.2. RO | Monitoring of GNS “soft” components

7.2.1. RO | Status of and outlook on needed actions according to the updated FRMMP

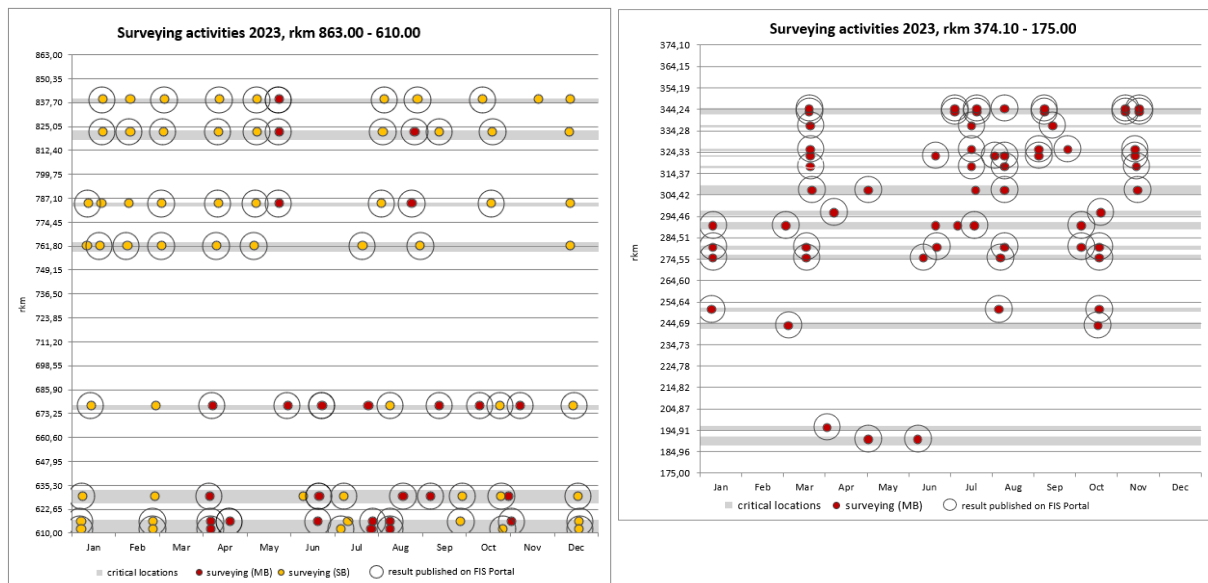
RO 01: Support acquisition of up-to-date sounding equipment, in particular sensors (incl. possibly drones), to raise the quality of surveying data		
Planned activities:	FAIRway Danube II: <ul style="list-style-type: none"> • AFDJ: Procurement of two aquatic drones (one with MB sensor, one with ADCP) • AFDJ: Procurement of one new surveying vessel with MB sensor • AFDJ: Upgrade of 4 sensors of the surveying vessels • ACN: Procurement of one new surveying vessel with MB sensor 	
Environmental relevance of planned activities:	What are the main expected environmental impacts?	none
(Possible) funding:	Connecting Europe Facility 2 (CEF2)	
Status and next steps (incl. timing):	The procurement procedure for the drones and sensors/vessels needs to be launched by the end of 2024 (different dates for different equipment).	
RO 02: Support acquisition of additional automatic gauging stations, especially for critical sections		
Planned activities:	AFDJ will install 54 additional gauging stations within the Romanian Operational Programme (PT) ACN will upgrade two gauging stations on the DBSC within FAIRway Danube II	
Environmental relevance of planned activities:	What are the main expected environmental impacts?	none
(Possible) funding:	Romanian Operational Programme (PT) Connecting Europe Facility 2 (CEF2)	
Status and next steps (incl. timing):	The procurement procedure for upgrading the gauging stations needs to be launched by the end of March 2024. The application Form for 54 additional gauging stations will be submitted for approval until June 2024.	
RO 03: Support acquisition of up-to-date aerial monitoring device (drone)		
Planned activities:	FAIRway Danube II: procurement of aeronautical drone with Lidar sensors (AFDJ)	
Environmental relevance of planned activities:	What are the main expected environmental impacts?	none
(Possible) funding:	Connecting Europe Facility 2 (CEF2)	
Status and next steps (incl. timing):	The procurement procedure for the drone needs to be launched by the end of March 2024.	
RO 04: Support acquisition of sensors measuring turbidity, sedimentation and chemical components of the water		
Planned activities:	FAIRway Danube II: <ul style="list-style-type: none"> • AFDJ: procurement of 160 buoys with fixed sensors • ACN: procurement of 3 buoys with fixed sensors 	
Environmental relevance of planned activities:	What are the main expected environmental impacts?	none
(Possible) funding:	Connecting Europe Facility 2 (CEF2)	

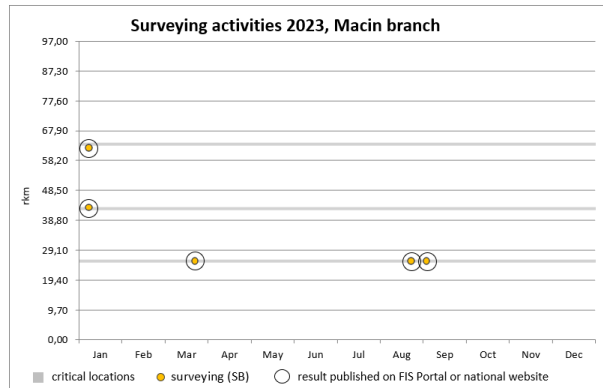
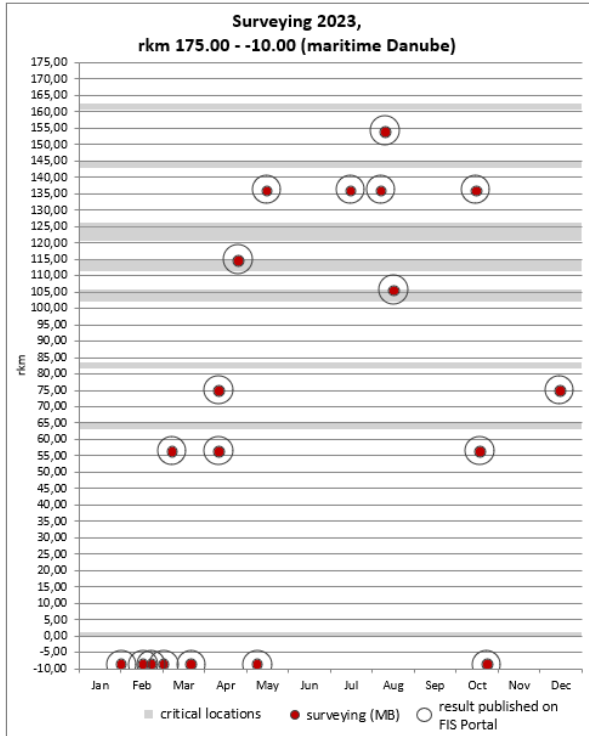
Status and next steps (incl. timing):	The procurement procedure for the drone needs to be launched by the end of September 2024 (AFDJ) and November 2024 (ACN).	
RO 05: Support further development of the existing waterway management tool (WAMS)		
Planned activities:	Further development of Romanian WAMS within FAIRway Danube II	
Environmental relevance of planned activities:	What are the main expected environmental impacts?	none
(Possible) funding:	Connecting Europe Facility 2 (CEF2)	
Status and next steps (incl. timing):	The procurement procedure for the upgrade of WAMS needs to be launched by the end of March 2025.	
RO 06: Support extension of the digital terrain model as a basis for planning and other services (e.g. wl forecast, calculation of LNWL)		
Planned activities:	Within FAST Danube the digital terrain model was developed based on bathymetric surveys, Lidar surveying and shore-side drillings. In the future, this terrain model should be extended and updated, based on new data within the FAST Danube 2 project.	
Environmental relevance of planned activities:	What are the main expected environmental impacts?	none
(Possible) funding:	Connecting Europe Facility 2 (CEF2)	
Status and next steps (incl. timing):	Deadline for submission of project application FAST Danube 2: end of January 2024.	
RO 07: Improve methodology for the calculation of the LNWL and extension to other gauges		
Status and next steps (incl. timing):	The extension of the LNWL to other gauges is planned, but currently no activities.	
RO 08: Support acquisition of (maritime) dredging equipment		
Status and next steps (incl. timing):	Currently no activities ongoing.	
RO 09: Support the training of specialized personnel for dredging operations		
Status and next steps (incl. timing):	Two self-propelled (fluvial) dredgers will be delivered by the end of 2023. In the beginning of 2024 training of personnel will be done. In general, the personnel situation is not favourable.	
RO 10: Support acquisition of state-of-the-art vessels equipped with advanced machines to perform marking operations		
Status and next steps (incl. timing):	See below action RO 11.	
RO 11: Support acquisition of intelligent marking system, including AIS AtoNs Support the establishment of an automated monitoring system, including the dissemination of current marking information		
Planned activities:	Romania is partner in the planned DISMAR project (Danube Integrated System for MARKing) with which the marking system on the RO-BG border stretch will be modernised. Project volume: roughly 10 million EUR. Envisaged duration: 3 years. Procurement of 150 buoys with AIS AtoNs, coastal signalisation and in case of Romania also a floating not self-propelled pontoon for the maintenance of on-shore signalisation. Within PRIMUS project (Feb.-Dec.2023) 195 buoys with AIS AtoNs were installed on the Sulina – Braila sector of the Danube.	
Environmental relevance of planned activities:	What are the main expected environmental impacts?	none
(Possible) funding:	INTERREG IV-A Romania- Bulgaria Programme 2021 – 2027 Romanian Operational Programme	

Status and next steps (incl. timing):	Deadline for submission of AF for DISMAR project was 11.09.2023. The project was selected for funding in January 2024.	
RO 12: Support geographical extension of the existing forecast to further gauges and continuous improvement of the forecast quality		
Planned activities:	Procurement of upgraded wl forecast within FAIRway Danube II	
Environmental relevance of planned activities:	What are the main expected environmental impacts?	none
(Possible) funding:	Connecting Europe Facility 2 (CEF2)	
Status and next steps (incl. timing):	The procurement procedure for the upgrade of the wl forecast needs to be launched by the end of March 2025.	
RO 13: Support customer-friendly processing and dissemination of information		
Support the upgrade of IENCs with bathymetric information		
Status and next steps (incl. timing):	In summer 2023 the bENC application was purchased, after a training period for the personnel the first 10 bathymetric ENC cells were created.	
RO 14: Support improvement of meteorological information		
Status and next steps (incl. timing):	Within the PRIMUS project in 2023 4 meteorological stations were installed.	
RO 15: Support acquisition of sensors to measure vertical bridge clearance		
Planned activities:	Within FAIRway Danube II: Procurement of 5 bridge clearance sensors (AFDJ)	
Environmental relevance of planned activities:	What are the main expected environmental impacts?	none
(Possible) funding:	Connecting Europe Facility 2 (CEF2)	
Status and next steps (incl. timing):	The procurement is planned to start in summer 2024.	

7.2.2. RO | Review of monitoring, rehabilitation and maintenance activities 2023

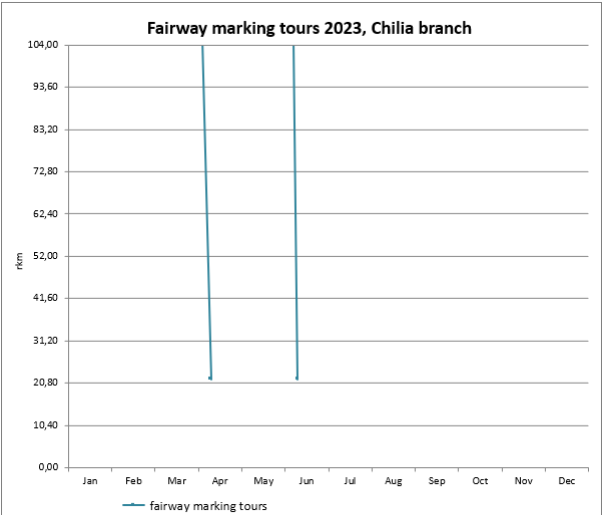
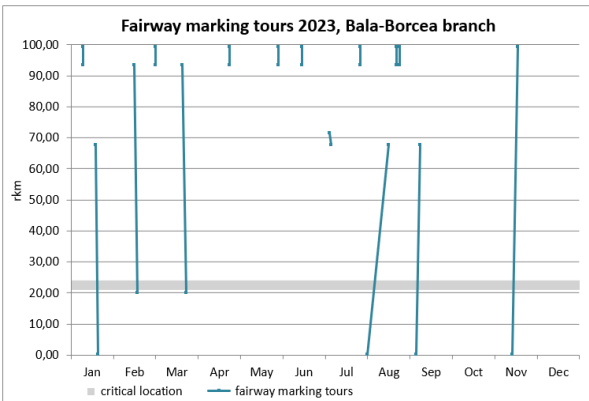
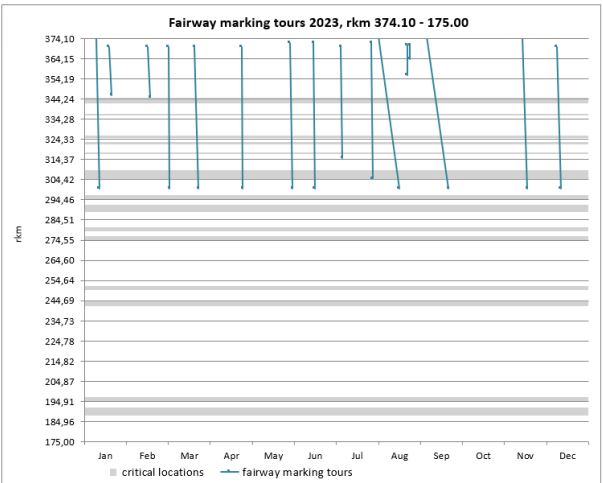
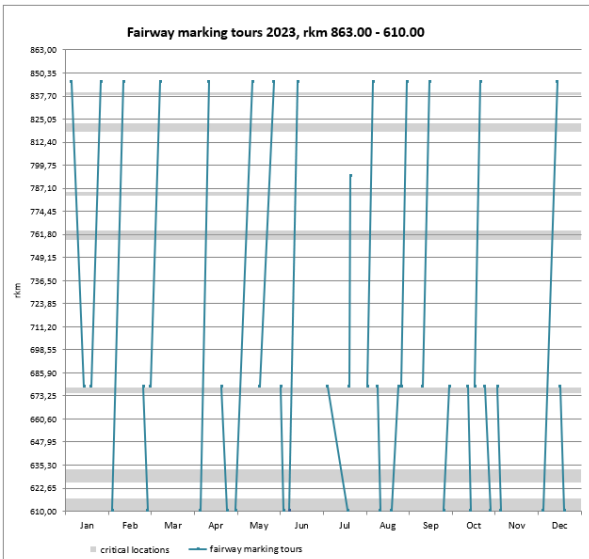
Riverbed surveying activities 2023

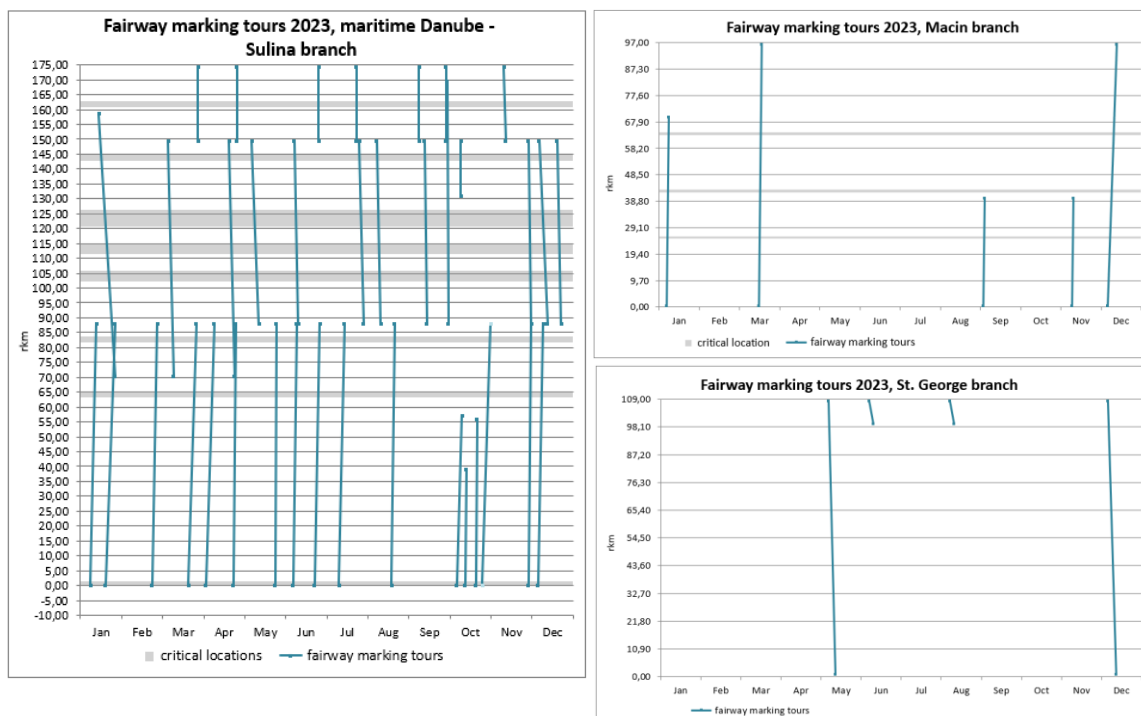




Altogether, over 140 surveying tours were conducted on the entire Romanian Danube sector. Most surveying results were published soon afterwards on FIS Portal.

Fairway marking activities 2023





Dredging activities 2023

In 2023, dredging works started in February for the maritime Danube sector and in May for the river Danube sector.

At the critical point Corabia (Km 627+500 – Km 628+100) AFDJ intervened with the COMANA 1 dredger, equipment purchased within the SWIM project, elevating a quantity of 53,900 cubic meters.

Dredging site			Dumping or placement site		Beginning of service	End of service	Material	Utilisation	m3	Permits needed (see next table)
Name of location	from river-km	to river-km	from river-km	to river-km						
Calnovat	617	614	612	613	23.05.2023	30.05.2023	Fine sedim.	Dumping	59035	-
Bechet	678	675	672	673	09.06.2023	22.06.2023	Fine sedim.	Dumping	90965	-
Salcia	820	818	816	817	14.08.2023	26.08.2023	Gravel	Dumping	26274	-
Calnovat	616	613	612	613	12.10.2023	28.10.2023	Fine sedim.	Dumping	40271	-
Corabia	622	620	622.5	623	28.10.2023	01.11.2023	Fine sedim.	Dumping	23819	-
Bechet	678	675	672	673	01.11.2023	01.11.2023	Fine sedim.	Dumping	47683	-
Cochirleni	310	304	305.0	304.0	27.06.2023	19.07.2023	Fine sedim.	Dumping	136919	-
Caragheorghe	346	342	340.5	340.0	17.06.2023	21.07.2023	Fine sedim.	Dumping	13081	-
Caragheorghe	346	342	340.5	340.0	29.08.2023	08.09.2023	Fine sedim.	Dumping	77715	-
Fermecat	323	321	323.0	324.0	08.09.2023	14.09.2023	Fine sedim.	Dumping	44674	-
Marleanu	329	324	323.0	324.0	14.09.2023	25.09.2023	Fine sedim.	Dumping	27611	-
Caragheorghe	346	342	340.5	340.0	08.11.2023	16.11.2023	Fine sedim.	Dumping	67246	-
Fermecat	323	321	323.0	324.0	27.11.2023	05.12.2023	Fine sedim.	Dumping	42900	-
Marleanu	329	326	323.0	324.0	16.11.2023	27.11.2023	Fine sedim.	Dumping	39854	-

Dunarea Veche	192.5	189	188.0	187.5	23.05.2023	30.05.2023	Fine sedim.	Dumping	41138	-
Capidava	281.5	278	279.4	279.8	09.06.2023	22.06.2023	Fine sedim.	Dumping	48017	-
Seimeni	294	288	288.5	289	28.06.2023	07.07.2023	Fine sedim.	Dumping	28632	-
Seimeni	294	288	288.5	289	12.07.2023	19.07.2023	Fine sedim.	Dumping	32213	-
Gropeni	197.5	195	198	199	07.08.2023	23.08.2023	Fine sedim.	Dumping	37981	-
Gropeni	197.5	195	198	199	07.08.2023	11.09.2023	Fine sedim.	Dumping	24724	-
Capidava	281.5	278	279.4	279.8	19.09.2023	17.10.2023	Fine sedim.	Dumping	60373	-
Seimeni	294	288	288.5	289	19.10.2023	02.11.2023	Fine sedim.	Dumping	26922	-
Albanesti	273	269	279.8	279.0	13.12.2023	31.12.2023	Fine sedim.	Dumping	44418	-
Seimeni	294	288	288.5	289	22.11.2023	13.12.2023	Fine sedim.	Dumping	44673	-
Corabia	628	627	626.5	627	13.07.2023	05.09.2023	Fine sedim.	Dumping	53900	-
Sulina bar	8.7	8.2	Black Sea	Black Sea	19.02.2023	14.03.2023	Fine sedim.	Dumping	78203	1,2
Prut	140.75	138.9	137	138	15.05.2023	16.06.2023	Fine sedim.	Dumping	97874	1,2
Prut	140.75	138.9	137	138	25.07.2023	18.08.2023	Fine sedim.	Dumping	175701	1,2

Summing up, between January and December 2023, the dredged quantities were a total volume of 1,532,816 cubic meters, of which on the Maritime Danube – 351,778 cubic meters and on the River Danube – 1,181,038 cubic meters.

Referen-ced permit [No.]	Title of permit (original language)	Permitting authority	Permit applicable		valid until	Type of permit (e.g. environmental, water, navigation law)	Main conditions for permit
			from river-km	to river-km			
1	Autorizația nr. 284 din 13.11.2013	Environmental Protection Agency Galati	0	175	12/11/2023	Navigation law	<ul style="list-style-type: none"> To respect the Law no. 211/2011 regarding the regime of waste; To respect Government Decision no. 235/2007 regarding the management of the used oil; To respect the provisions of the International Convention for the Prevention of Pollution From Ships - MARPOL 73/78; It is forbidden the abandonment or storage in any way, in riverbed or on the banks of surface water or maritime of any kind of waste Monitoring of the quality of the environment Monitoring of the chemical composition of dredged material
2	Autorizația nr. 1154 din 25.02.2013	Administration of the Danube Delta Biosphere Reserve	0	175	25/02/2023	Water Law	<ul style="list-style-type: none"> the dredging works within the Danube Delta Biosphere Reserve in Bara Sulina Mm critical points at 77-90, Rostock Mm 31, Mm 41 upstream Tulcea, Isaccea Mm + 800-Mm 58 storage of the dredged material on the dredger „Dunărea Maritimă” discharge of the dredged material in the discharge areas in Bara Sulina 2 km offshore, km 108-km 109 St. Gheorghe arm, left bank, upstream Tulcea – Mm

							45 + 500 right bank, 58-Mm 58 Isaccea Mm + 1/2 right bank
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7.2.3. RO | Status of operational budgets and investments 2023

Operational expenditures for conducted activities 2023 and budget needs 2024 (AFDJ)

Need area	Operational expenditures 2023	Required operational budget 2024	Secured operational budget 2024	Remaining financing gap 2024
Minimum fairway parameters (width/depth) – maintenance dredging	8 400 000	9 550 000	9 550 000	0
Surveying of the riverbed	1 600 000	1 700 000	1 700 000	0
Water level gauges	n/a	n/a	n/a	-
Marking of the fairway	3 570 000	4 000 000	4 000 000	0
Availability of locks / lock chambers	-	-	-	-
Information on water levels and forecasts	-	-	-	-
Information on fairway depths	-	-	-	-
Information on marking plans	-	-	-	-
Meteorological information	-	-	-	-
Other needs	-	-	-	-
Sum (Euro)	13 570 000	15 250 000	15 250 000	0

Operational expenditures for conducted activities 2023 and budget needs 2024 (ACN)

Need area	Operational expenditures 2023	Required operational budget 2024	Secured operational budget 2024	Remaining financing gap 2024
Minimum fairway parameters (width/depth) – maintenance dredging	n/a	n/a	n/a	-
Surveying of the riverbed	10 411	9 100	9 100	0
Water level gauges	7 400	17 790	17 790	0
Marking of the fairway	10 570	11 320	11 320	0
Availability of locks / lock chambers	6 432 777	6 715 856	6 715 856	0
Information on water levels and forecasts	n/a	n/a	n/a	-
Information on fairway depths	-	-	-	-
Information on marking plans	-	-	-	-
Meteorological information	-	-	-	-
Other needs	150 067	229 460	229 460	0
Sum (Euro)	6 611 225	6 983 526	6 983 526	0

Ongoing and planned investments to improve waterway management

Equipment/service of planned or ongoing investment	(estimated) investment costs	already secured investment costs (state budget or other financing)	% thereof EU co-financed
Planned: Procurement of one new surveying vessel (AFDJ) (FAIRway Danube II)	400 000	400 000	85%
Planned: Procurement of one new surveying vessel (ACN) (FAIRway Danube II)	1 200 000	1 200 000	85%
Planned: Upgrade of four surveying vessels (AFDJ) (FAIRway Danube II)	1 600 000	1 600 000	85%
Planned: Upgrade of two gauging stations (ACN) (FAIRway Danube II)	40 000	40 000	85%
Planned: Procurement of one aeronautical drone (AFDJ) (FAIRway Danube II)	80 000	80 000	85%
Planned: Procurement of two aquatic drones (AFDJ) (FAIRway Danube II)	200 000	200 000	85%
Planned: Upgrade of the RO WAMS System (FAIRway Danube II)	200 000	200 000	85%
Planned: Pilot operation of flexible infrastructure (AFDJ) (FAIRway Danube II)	5 177 000	5 177 000	85%
Planned: Upgrade of the water level forecast (FAIRway Danube II)	20 000	20 000	85%
Planned: Procurement of five bridge clearance sensors (FAIRway Danube II)	30 000	30 000	85%
Planned: Procurement of 160 buoys (AFDJ) (FAIRway Danube II)	1 750 000	1 750 000	85%
Planned: Procurement of 3 buoys (ACN) (FAIRway Danube II)	110 000	110 000	85%
Planned: Procurements in the DISMAR project (AFDJ)	5 142 145	5 142 145	80%
Procurements in the PRIMUS project (AFDJ)	15 450 000	15 450 000	85%
Sum (Euro)	17 494 145	17 494 145	-

8. Bulgaria

8.1. BG | Monitoring of GNS “hard” components

8.1.1. BG | Status of TEN-T minimum requirement: availability of the navigation channel

Number of days with fairway depths $\geq 2.50\text{m}$ at main critical locations 2015-2023

for a fairway width of 80m (CEMT class VII); very critical locations are marked grey

Critical location rkm from-to	Critical location name	2015	2016	2017	2018	2019	2020	2021	2022	2023
km 569 - km 561	Belene island Milka island Kondur island	212	273	220	280	277	340	307	207	327
km 548 - km 540	Vardim island	268	327	316	289	343	363	321	265	325
km 539 - km 530	Yantra River Giska Island	253	306	337	330	343	359	321	290	334
km 525 - km 520	Batin island	246	295	288	285	309	363	312	267	334
km 458 - km 455	Brashlian island	365	313	263	297	329	351	316	270	330
km 426 - km 420	Kosui island Dunavets island	322	366	365	342	318	347	320	295	335
km 408 - km 399	Popina island	311	304	269	293	313	361	342	285	344

Number of days with water levels \geq LNWL at main critical locations 2015-2023

Critical location	Reference gauges	2015	2016	2017	2018	2019	2020	2021	2022	2023
567.00-566.70 – Belene island 562.00-561.50 – Coundur/ Milka island 541.60-541.00 – Vardim island 538.50-537 – Giska island	Svishtov km 54.300	285	348	334	293	298	350	317	262	29
523.80-523.20 – Batin island 475.70-475.30 – Gostin island	Ruse km 495.600	288	348	339	295	303	350	317	254	38
425.90-425.20- Kosui island	Silistra km 375.500	293	348	343	288	290	342	310	245	44

391.60-391.10 - Vetren island										
383.50-382.50 - Chajka island										

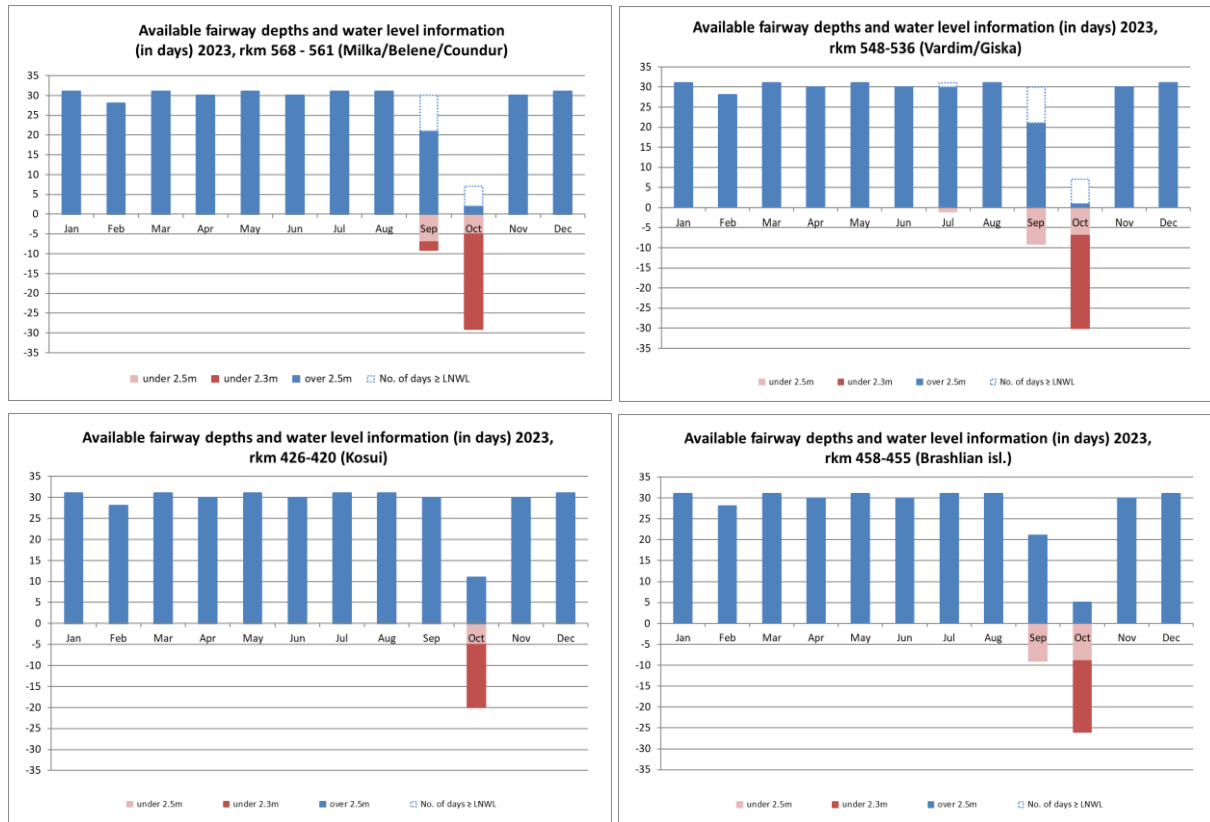
Number of days with recorded water levels under LNWL in Svishtov: 29 days (which is 8% of the year 2023).
 Number of days with recorded water levels under LNWL in Ruse: 38 days (which is 10% of the year 2023).
 Number of days with recorded water levels under LNWL in Silistra: 44 days (which is 12% of the year 2023).

The lowest water level for Ruse station (-) 36 cm was recorded on 19. and 20.10.2023. For the Svishtov gauging station, the lowest water level was (+) 8 cm, which was recorded on 18. and 19.10.2023.

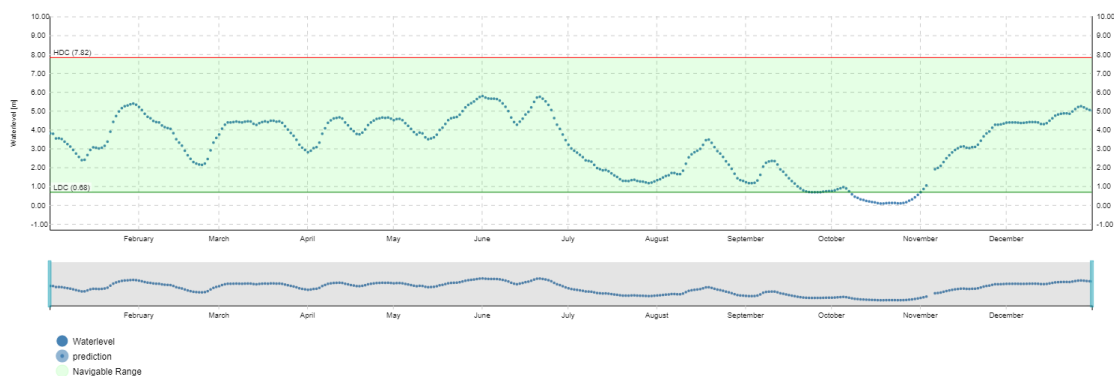
In 2018, began a process with annual maintenance dredging of the fairway performed by EAEMDR.

In 2023, the target fairway depth of 2.50m was achieved on 325 days for 80m fairway width and on 362 days for 60m fairway width.

For the sector between Ruse and Somovit limiting bottlenecks were Belene and Vardim (rkm. 565.000 – 563.000 and rkm. 547.000 – 544.000), while for the sector between Ruse and Silistra limiting bottlenecks were Mishka and Brashlyan (rkm. 463.000 – 460.000 and rkm. 458.000 – 455.000).



GAUGE SVISHTOV: Waterlevel (1.1.2023 - 31.12.2023)



8.1.2. BG | Status of TEN-T minimum requirement: availability of minimum height under bridges

Important remark: Bulgaria does not yet calculate and publish information on the minimum height under bridges. Within the FAIRway Danube II project Romania will develop this task for the bridges between Bulgaria and Romania; information on compliance with this TEN-T minimum requirement will be published as soon as possible

8.2. BG | Monitoring of GNS “soft” components

8.2.1. BG | Status of and outlook on needed actions according to the updated FRMMP

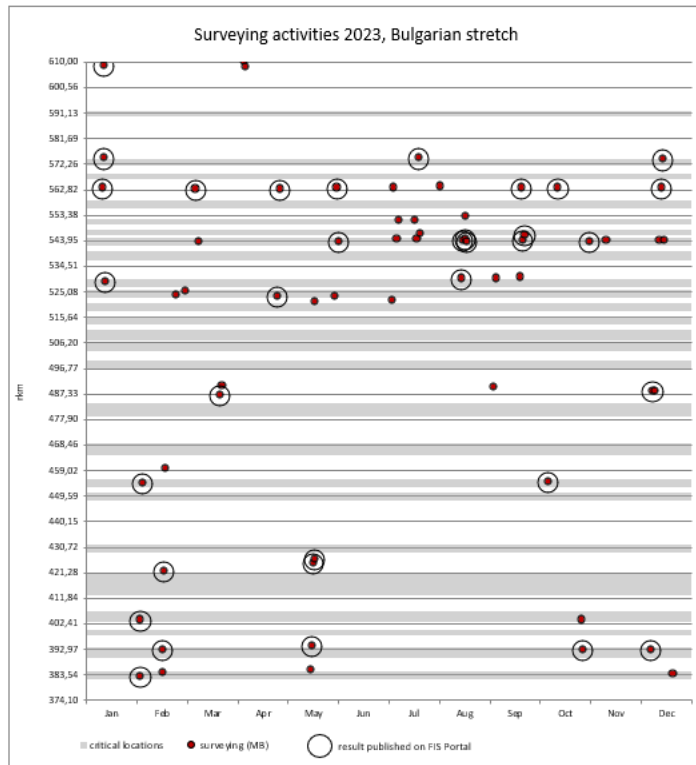
BG 01: Support acquisition of up-to-date monitoring equipment, in particular sensors (incl. possibly ACDP, MB sensor)		
Planned activities:	Within the project FAIRway Danube II: Upgrade of one existing surveying vessel with new sensor	
Environmental relevance of planned activities:	What are the main expected environmental impacts?	none
(Possible) funding:	Connecting Europe Facility 2 (CEF2)	
Status and next steps (incl. timing):	Procurement of the new sensor for the surveying vessel was launched on 18.04.2024 via the Bulgarian CAIS Electronic Public Procurement Acquisition Portal.	
BG 02: Support acquisition of new or upgrade of existing gauging stations		
Planned activities:	Upgrade of 17 gauging stations planned within FAIRway Danube II	
Environmental relevance of planned activities:	What are the main expected environmental impacts?	none
(Possible) funding:	Connecting Europe Facility 2 (CEF2)	
Status and next steps (incl. timing):	The procurement procedure for upgrading the gauging stations needs to be launched by the end of Dec. 2024.	
BG 03: Secure education and provision of well-trained staff in the short, medium and long term		
Status and next steps (incl. timing):	No specific action is envisaged at the moment.	
BG 04: Support further development of the existing waterway management tool (WAMS)		
Planned activities:	Further development of WAMS within FAIRway Danube II project	
Environmental relevance of planned activities:	What are the main expected environmental impacts?	none
(Possible) funding:	Connecting Europe Facility 2 (CEF2)	
Status and next steps (incl. timing):	The procurement procedure for upgrading the WAMS needs to be launched by the end of March 2025.	
BG 05: Support acquisition of up-to-date self-propelled dredging equipment		
Planned activities:	Procurement of dredging equipment	
Environmental relevance of planned activities:	What are the main expected environmental impacts?	none
(Possible) funding:	(National) Transport Connectivity Programme 2021-2027	
Status and next steps (incl. timing):	Bulgarian transport ministry already approved the integration into the current Operational Programme; preparation of feasibility study and technical specification in 2024; start of tender procedure earliest 2025.	

BG 06: Support implementation of capital dredging to reduce the number of needed interventions		
Status and next steps (incl. timing):	Apart from maintenance dredging (see below) no capital dredging is foreseen at the moment.	
BG 07: Secure budget resources for maintenance dredging operations		
Planned activities:	Framework contract for a total volume of 900,000m ³ to be used between 2022 and 2024 is in place (contract expires in 2024 or after the total volume is dredged – whichever comes first)	
Environmental relevance of planned activities:	What are the main expected environmental impacts?	No permanent impacts expected. The dredging plan is sent to the Ministry of Environment and Water for basic approval every year. During the year, before actual dredging is performed, EAEMDR notifies the Danube Basin Directorate (an entity inside the Ministry of Environment and Water) about the location of the dredging activities and the area where the sediment will be deposited again. Apart from the Srébarna Biosphere Reserve downstream of Silistra, EAEMDR can carry out dredging in the waterway. Consideration must be given to fish habitats and critical times (especially spawning times) when planning dredging operations.
	Which measures are taken to mitigate these impacts?	
	Is water status expected to deteriorate?	no
(Possible) funding:	State budget	
Status and next steps (incl. timing):	EAEMDR has its own dredging equipment; its use is more cost-effective; usage of own equipment envisaged. However, a new dredging framework contract is under preparation for 2025 and the following years.	
BG 08: Support acquisition of intelligent marking system, including AIS AtoNs		
Support the establishment of an automated monitoring system, including the dissemination of current marking information		
Planned activities:	EAEMDR is a partner in the planned project DISMAR – Danube Integrated System for MARKing in which the marking system on the RO-BG border stretch will be modernised.	
Environmental relevance of planned activities:	What are the main expected environmental impacts?	none
(Possible) funding:	INTERREG IV-A Romania- Bulgaria Programme 2021 – 2027	
Status and next steps (incl. timing):	The project proposal was selected for funding on 22.01.2024.	
BG 09: Support acquisition of state-of-the-art vessel equipped with advanced machines to perform marking operations		
Status and next steps (incl. timing):	Currently no further activities planned.	
BG 10: Secure education and provision of well-trained staff in the short, medium and long term		
Status and next steps (incl. timing):	Currently no activities planned.	
BG 11: Support customer-friendly processing and dissemination of information, incl. bathymetric IENCs		
Planned activities:	The upgrade of the BG water level forecast is planned within FAIRway Danube II	

Environmental relevance of planned activities:	What are the main expected environmental impacts?	none
(Possible) funding:	Connecting Europe Facility 2 (CEF2)	
Status and next steps (incl. timing):	Start of the procurement procedure is not yet defined.	

8.2.2. BG | Review of monitoring, rehabilitation and maintenance activities 2023

Riverbed surveying activities 2023



In 2023 EAEMDR received a new multibeam echo-sounder and LiDAR, purchased within the project "Improvement of the navigation conditions on the Danube river through delivery of hydrographic equipment" under the Operational Programme "Transport and transport infrastructure". EAEMDR performed 64 hydrographic surveys in 2023. The obtained data is processed and published on the agency's website, WAMOS, and on the Danube FIS Portal. It has to be mentioned that additionally, also data from the marking tours is published on FIS Portal, if it is more recent.

The locations to be surveyed in 2023 were prioritized by the hydrographic department.

Fairway marking activities 2023

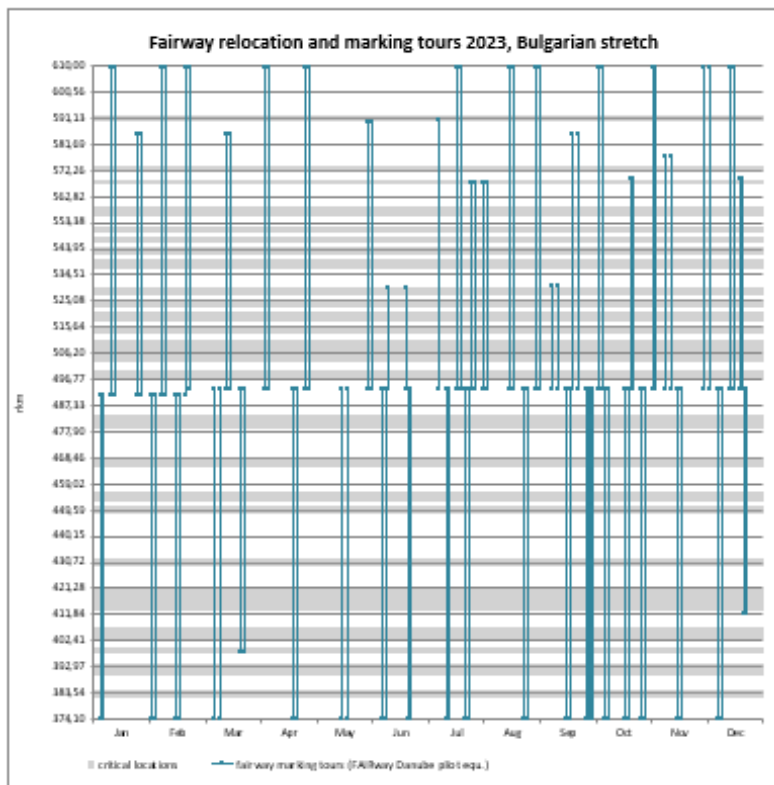
The marking tours are quick checks to determine the need for more detailed surveying and fairway relocation activities. They are conducted several times per month. When necessary, the fairway is narrowed/widened or the trajectory is changed.

The navigational conditions in 2023 necessitated a number of fairway adjustments and the mounting of additional number of floating signs in order to ensure the safety of navigation. In order to ensure the navigational conditions, during 2023, 92 fairway corrections were made.

The depth measurements conducted during the marking and monitoring tours during 2023 were also published on the FIS Portal and EAEMDR's website.

In order to ensure the safety of navigation on the Bulgarian section of Danube River during 2023 EAEMDR performed the following activities:

- Continuous monitoring of the riverbed status;
- Timely removal and restoration of the damaged navigational signs and fairway maintenance in accordance with DC requirements and recommendations - in total 495 floating signs were mounted and 496 floating signs were dismantled, 59 floating signs were damaged or misplaced due to an accident;
- Provision of operational information on the fairway dimensions – the information is published on EAEMDR's website on a daily basis;



- Timely notification of skippers about the fairway conditions concerning all changes of the type and location of the navigational signs – 109 notices for changes of the navigational conditions were issued;
 - Maintaining up-to-date information on the website and on FIS portal for 25 sections with increased risk for navigation;
 - 42 updates of ENC were made and 183 bottlenecks charts/plots were made and published.
- The frequent and more accurate sounding with the new marking vessel Osam contributed to finding and ensuring better fairway trajectory and thus improving the navigational conditions in the most critical sections. During 2023 the fairway trajectory was relocated 14 times.

Most results of the monitoring were published on FIS-Portal.

Dredging activities 2023

In total, in 2023, 320 902 m³ of sediment were dredged in the Danube.

Dredging site			Dumping or placement site		Beginning of service	End of service	Material	Utilisation	m3	Permits needed (see next table)
Name of location	from river-km	to river-km	from river-km	to river-km						
1	524.300	523.900	n/a	n/a	08.06.2023	30.06.2023	Sand	dumping	16 209	none
2	565.000	564.500	n/a	n/a	21.07.2023	28.07.2023	Sand	dumping	65 493	none
3	544.500	543.200	n/a	n/a	01.08.2023	10.08.2023	Sand	dumping	77 938	none
4	531.000	531.000	n/a	n/a	07.09.2023	28.09.2023	Sand	dumping	4 424	none
5	544.500	543.200	n/a	n/a	26.09.2023	02.10.2023	Sand	dumping	59 490	none
6	564.500	563.100	n/a	n/a	03.10.2023	09.10.2023	Sand	dumping	40 712	none
7	393.500	392.800	n/a	n/a	16.10.2023	24.10.2023	Sand	dumping	25 083	none
8	490.950	490.000	n/a	n/a	08.11.2023	06.12.2023	Sand	dumping	31 553	none

8.2.3. BG | Status of operational budgets and investments 2023

Operational expenditures for conducted activities 2023 and budget needs 2024

Need area	Operational expenditures 2023	Required operational budget 2024	Secured operational budget 2024	Remaining financing gap 2024
Minimum fairway parameters (width/depth) – maintenance dredging	2 517 663	2 315 343	2 315 343	0
Surveying of the riverbed	149 902	117 617	117 617	0
Water level gauges	39 082	29 549	29 549	0
Marking of the fairway	416 394	326 715	326 715	0
Availability of locks / lock chambers	n/a	n/a	n/a	n/a
Information on water levels and forecasts	39 082	29 500	29 500	0
Information on fairway depths	8 000	8 000	8 000	0
Information on marking plans	8 000	8 000	8 000	0
Meteorological information	39 082	29 500	29 500	0
Other needs	49 966	39 206	39 206	0
Sum (Euro)	3 267 171	2 903 430	2 903 430	0

Ongoing and planned investments to improve waterway management

Equipment/service of planned or ongoing investment	(estimated) investment costs	already secured investment costs (state budget or other financing)	% thereof EU co-financed
Planned: Upgrade of one surveying vessel (FAIRway Danube II)	438 582	438 582	50%
Planned: Upgrade of 17 gauging stations (FAIRway Danube II)	780 000	780 000	
Planned: Upgrade of the BG WAMS System (FAIRway Danube II)	286 346	286 346	
Planned: Pilot operation of flexible infrastructure (FAIRway Danube II)	736 346	736 346	
Planned: Upgrade of the water level forecast (FAIRway Danube II)	50 000	50 000	
Planned: Procurements in the DISMAR project	4 586 140	4 586 140	80%
Sum (Euro)	6 877 414	6 877 414	